



SERVICE MANUAL

DUAL BAND FM TRANSCEIVER

IC-V21AT

SECTION 1 ADJUSTMENT PROCEDURES

1-1 PLL ADJUSTMENT

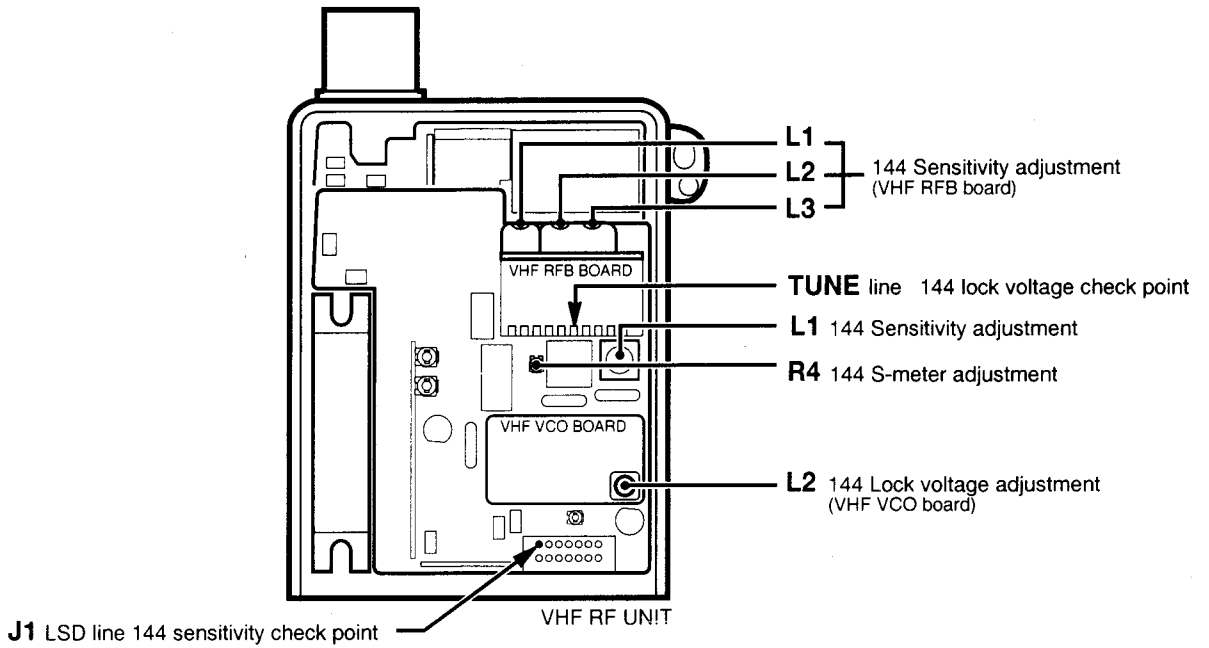
ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
144 LOCK VOLTAGE	1	<ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Adjust either the transmit lock voltage or receive lock voltage (whichever is higher). 	VHF RFA	Connect the DC voltmeter to the TUNE line.	1.9 V	VHF VCO	L2
	2				1.4 V \pm 0.4 V after a foil is attached.		Verify
220 LOCK VOLTAGE	1	<ul style="list-style-type: none"> Displayed frequency: 225.000 MHz 	220 RF	Connect the DC voltmeter to the LV.	1.6 V \pm 0.3 V after a foil is attached.	220 VCO	L2
REFERENCE FREQUENCY	1	<ul style="list-style-type: none"> Displayed frequency: 220.000 MHz Transmitting 	Top panel	Loosely couple the frequency counter to the antenna connector.	220.000 MHz	220 RF	C167

1-2 RECEIVER ADJUSTMENT

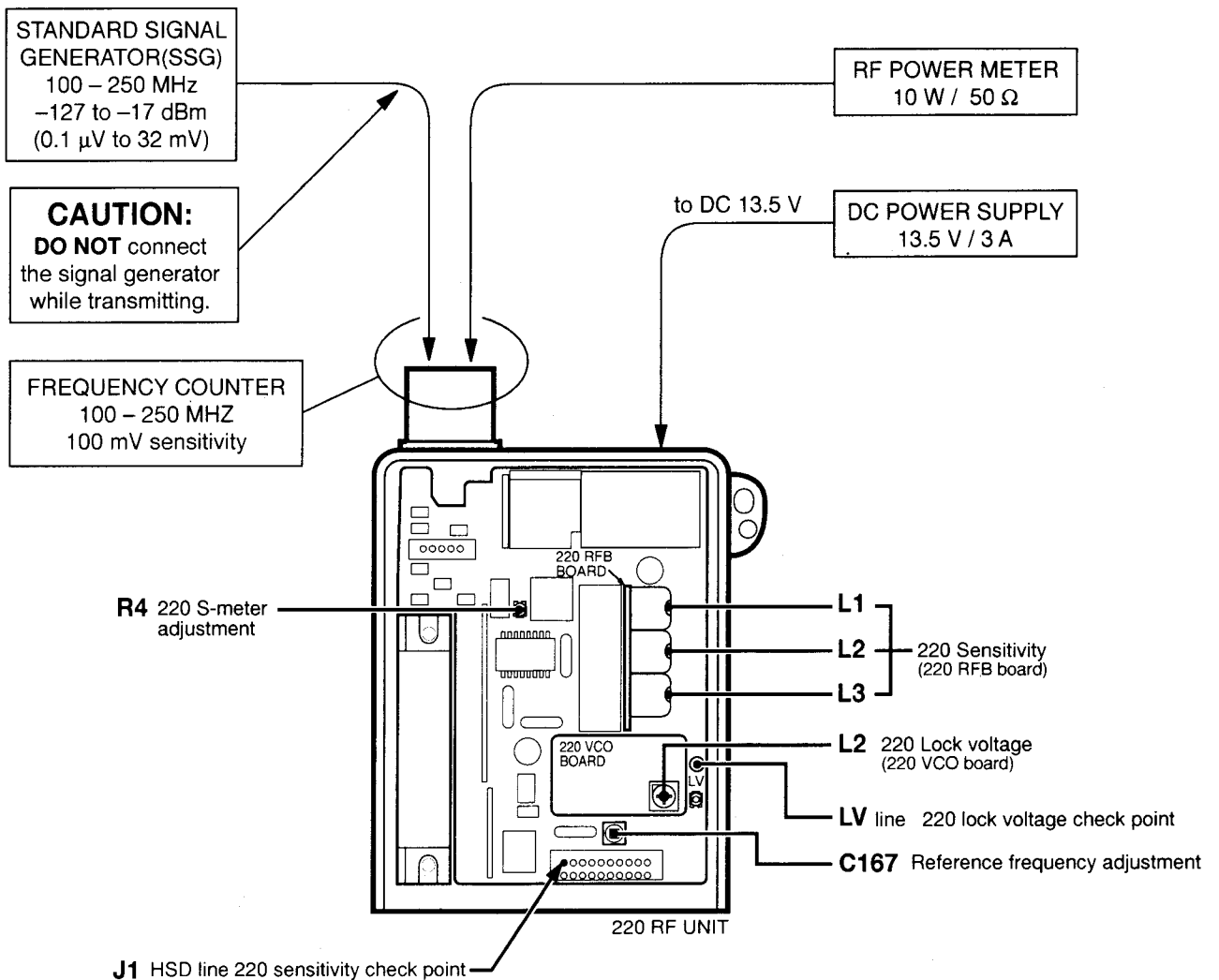
ADJUSTMENT		ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
			UNIT	LOCATION		UNIT	ADJUST
144 SENSITIVITY	1	<ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Connect the SSG to the antenna connector and set as: <ul style="list-style-type: none"> Level : 1.0 μV* (-107 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz [144 SQL] control : CCW Receiving 	VHF RF	Connect the oscilloscope to the LSD line of J1.	Maximum DC voltage	VHF RFB	Adjust in sequence L1, L2, L3
						VHF RF	L1
144 S-METER	1	<ul style="list-style-type: none"> Displayed frequency: 145.000 MHz Connect the SSG to the antenna connector and set as: <ul style="list-style-type: none"> Level : 0.5 μV* (-113 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz Receiving 	LCD display	S/RF indicator	S3 (3 dots)	VHF RF	R4
220 SENSITIVITY	1	<ul style="list-style-type: none"> Displayed frequency: 223.000 MHz Connect the SSG to the antenna connector and set as: <ul style="list-style-type: none"> Level : 1.0 μV* (-107 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz [220 SQL] control : CCW Receiving 	220 RF	Connect the oscilloscope to the HSD line of J1.	Maximum DC voltage	220 RFB	Adjust in L1, L2, L3
220 S-METER	1	<ul style="list-style-type: none"> Displayed frequency: 223.000 MHz Connect the SSG to the antenna connector and set as: <ul style="list-style-type: none"> Level : 0.5 μV* (-113 dBm) Modulation : 1 kHz Deviation : \pm3.5 kHz Receiving 	LCD display	S/RF indicator	S3 (3 dots)	220 RF	R4

* This output level of the standard signal generator (SSG) is indicated as the SSG's open circuit.

● VHF RF UNIT AND CONNECTIONS



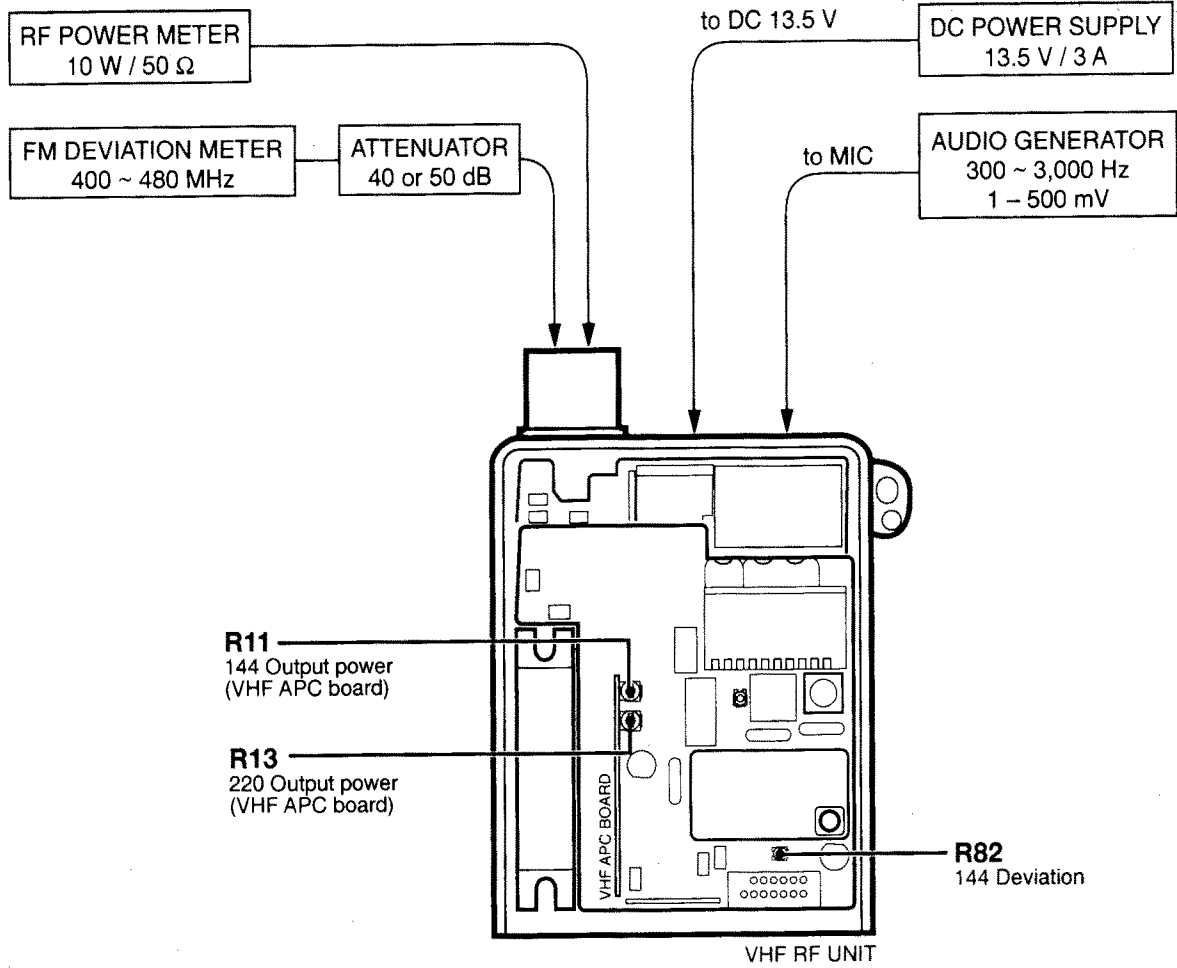
● 220 RF UNIT AND CONNECTIONS



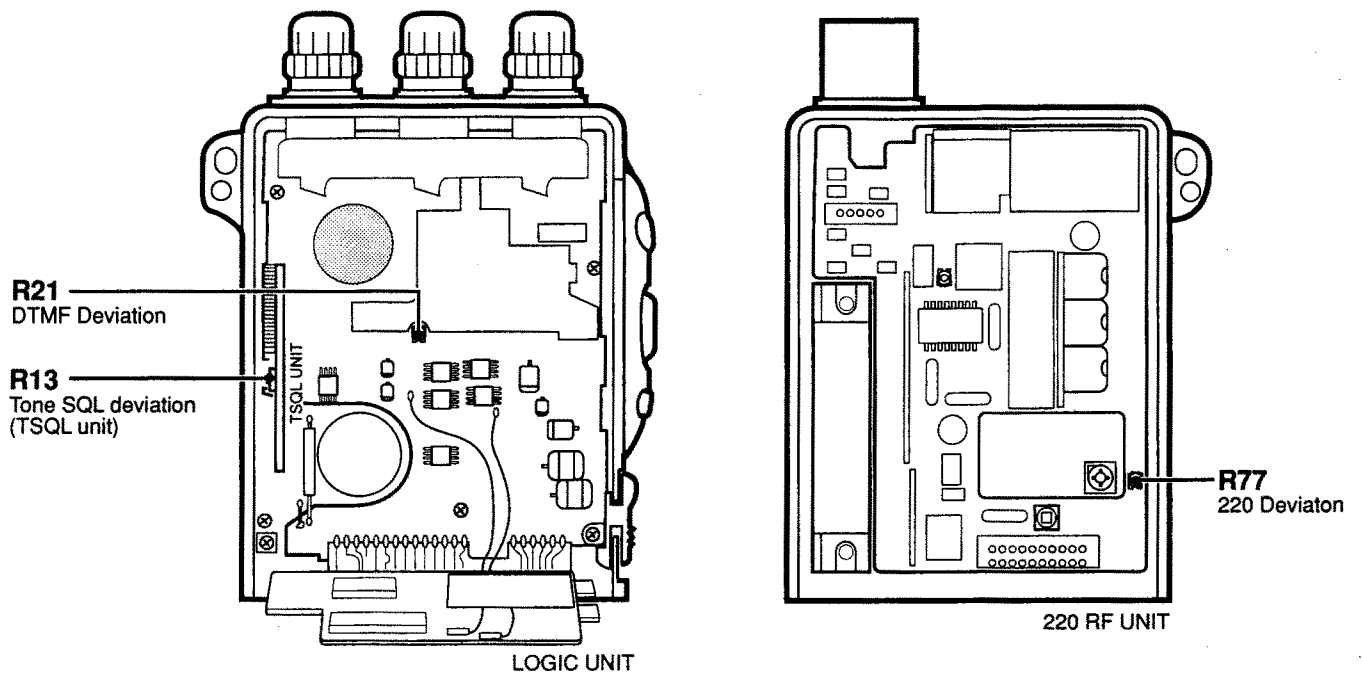
1-3 TRANSMITTER ADJUSTMENT

ADJUSTMENT	ADJUSTMENT CONDITIONS	MEASUREMENT		VALUE	ADJUSTMENT POINT	
		UNIT	LOCATION		UNIT	ADJUST
144 OUTPUT POWER	1 <ul style="list-style-type: none"> ● Displayed frequency 145.000 MHz ● Output power : High ● Transmitting ● Be sure the power supply voltage is 13.5 V 	Top panel	Connect the RF power meter to the antenna connector.	5.0 W	VHF APC	R11
144 DEVIATION	1 <ul style="list-style-type: none"> ● Displayed frequency: 145.000 MHz ● Connect the audio generator to the [MIC] connector and set as: 190 mV/1.0 kHz ● Set the FM deviation meter as: HPF : 50 Hz LPF : 20 kHz De-emphasis : OFF Detector : (P-P)/2 ● Transmitting 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±4.5 kHz	VHF RF	R82
220 OUTPUT POWER	1 <ul style="list-style-type: none"> ● Displayed frequency: 223.000 MHz ● Output power : High ● Transmitting ● Be sure the power supply voltage is 13.5 V 	Top panel	Connect the RF power meter to the antenna connector.	5.0 W	VHF APC	R13
220 DEVIATION	1 <ul style="list-style-type: none"> ● Displayed frequency: 222.000 MHz ● Connect the audio generator to the [MIC] connector and set as: 190 mV/1.0 kHz ● Set the FM deviation meter as: HPF : 50 Hz LPF : 20 kHz De-emphasis : OFF Detector : (P-P)/2 ● Transmitting 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±4.5 kHz	220 RF	R77
DTMF DEVIATION	1 <ul style="list-style-type: none"> ● Displayed frequency: 222.000 MHz ● Push [D] key while transmitting. 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±3.5 kHz	LOGIC	R21
TONE SQL DEVIATION	1 <ul style="list-style-type: none"> ● Displayed frequency : 222.000 MHz HPF : OFF LPF : 3 kHz De-emphasis : OFF Detector : (P-P)/2 ● Tone frequency : 88.5 Hz ● Tone encoder : ON ● Transmitting ● Apply no signal to the [MIC] connector 	Top panel	Connect the FM deviation meter to the antenna connector through the attenuator.	±0.75 kHz	TSQL	R13

● VHF RF UNIT AND CONNECTIONS



● LOGIC AND 220 RF UNITS



SECTION 2 PARTS LIST

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
IC1	1140003860	S.IC HD404629A87H
IC2	1150001100	S.IC M66321GP-30AD
IC3	1150001100	S.IC M66321GP-30AD
IC4	1130004330	S.IC LC7385M
IC5	1130006220	S.IC TC4W53FU (TE12L)
IC6	1130007060	S.IC TC7W02FU(TE12L)
IC7	1110002400	S.IC NJM2107F(TE1)
IC8	1130006220	S.IC TC4W53FU (TE12L)
IC10	1110002400	S.IC NJM2107F(TE1)
IC11	1130006220	S.IC TC4W53FU (TE12L)
IC12	1130006550	S.IC TC7S08FU (TE85R)
IC13	1180001000	S.IC S-81240PG-PJ-T1
IC14	1130006550	S.IC TC7S08FU (TE85R)
IC15	1110003170	S.IC S-80735SL-AZ-T1
IC17	1110002490	S.IC M5218FP-73A
IC18	1130006220	S.IC TC4W53FU (TE12L)
IC19	1130006220	S.IC TC4W53FU (TE12L)
IC20	1130006890	S.IC TC7S04FU (TE85R)
IC21	1130006220	S.IC TC4W53FU (TE12L)
IC22	1130006220	S.IC TC4W53FU (TE12L)
IC23	1130007020	S.IC TC7S66FU(TE85R)
IC24	1130007030	S.IC TC7W08FU(TE12L)
Q1	1590001170	S.TRANSISTOR XP1501-(TX).AB
Q2	1510000620	S.TRANSISTOR 2SA1576 T107 S
Q3	1520000430	S.TRANSISTOR 2SB1462-R(TX)
Q4	1590001750	S.TRANSISTOR XP5501-(TX)
Q6	1590001170	S.TRANSISTOR XP1501-(TX).AB
Q7	1590001130	S.TRANSISTOR UN9110(TX)
Q8	1590001150	S.TRANSISTOR UN9211(TX)
Q10	1590001170	S.TRANSISTOR XP1501-(TX).AB
Q11	1590001190	S.TRANSISTOR XP6501-(TX).AB
Q12	1590001190	S.TRANSISTOR XP6501-(TX).AB
Q13	1590001410	S.TRANSISTOR XP1215(TX)
Q17	1590001190	S.TRANSISTOR XP6501-(TX).AB
Q18	1590001410	S.TRANSISTOR XP1215(TX)
Q20	1540000350	S.TRANSISTOR 2SD2216-S(TX)
Q21	1540000350	S.TRANSISTOR 2SD2216-S(TX)
Q22	1540000350	S.TRANSISTOR 2SD2216-S(TX)
Q23	1540000350	S.TRANSISTOR 2SD2216-S(TX)
Q25	1590001700	S.TRANSISTOR XP6210-(TX)
Q26	1590001180	S.TRANSISTOR XP1210(TX)
Q28	1590001180	S.TRANSISTOR XP1210(TX)
Q29	1590001700	S.TRANSISTOR XP6210-(TX)
Q31	1590001470	S.TRANSISTOR UN9213(TX)
Q32	1590001730	S.TRANSISTOR UN9113(TX)
Q33	1540000410	S.TRANSISTOR 2SD2345(TX)S
Q34	1590001740	S.TRANSISTOR XP6214-(TX)
D1	1750000340	S.DIODE 1SS357 (TPHR3)
D2	1790000980	S.DIODE MA742(TX)
D4	1790000820	S.DIODE MA132K(TX)
D7	1790000490	S.DIODE HSM88AS-TR
D8	1790000860	S.DIODE MA133(TX)
D9	1790000860	S.DIODE MA133(TX)
D10	1790000860	S.DIODE MA133(TX)
D12	1790000490	S.DIODE HSM88AS-TR
D13	1790000860	S.DIODE MA133(TX)
D14	1790000860	S.DIODE MA133(TX)
D15	1790000860	S.DIODE MA133(TX)
D16	1790000840	S.DIODE MA132WA(TX)
D17	1790000870	S.DIODE MA1S121(TX)
D18	1790000590	S.DIODE MA110(TW)
D19	1790000870	S.DIODE MA1S121(TX)
D20	1790000870	S.DIODE MA1S121(TX)
D21	1790000870	S.DIODE MA1S121(TX)
D22	1790000820	S.DIODE MA132K(TX)
D23	1790000850	S.DIODE MA132WK(TX)

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
D26	1750000130	S.DIODE DA204U T107
D27	1790000870	S.DIODE MA1S121(TX)
X1	6060000520	S.CERAMIC CSAC2.00MGC200-TC
X2	6050008760	XTAL CR-462 32.768KHz
X3	6060000150	S.CERAMIC CSAC3.58MGC300CD
R1	7410000610	S.ARRAY EXB-V4V 153JV (15 kΩ)
R2	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)
R3	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)
R4	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)
R5	7030003840	S.RESISTOR ERJ3GEYJ 225 V (2.2 MΩ)
R6	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)
R8	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)
R9	7410000580	S.ARRAY EXB-V4V 474JV (470 kΩ)
R13	7030003620	S.RESISTOR ERJ3GEYJ 333 V (33 kΩ)
R14	7030003410	S.RESISTOR ERJ3GEYJ 581 V (580 Ω)
R16	7030003760	S.RESISTOR ERJ3GEYJ 474 V (470 kΩ)
R17	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R18	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R19	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R21	7310003600	S.TRIMMER EVM-1XSX50 B54 (503)
R22	7030003620	S.RESISTOR ERJ3GEYJ 333 V (33 kΩ)
R23	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)
R24	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)
R25	7030003800	S.RESISTOR ERJ3GEYJ 105 V (1 MΩ)
R26	7030003450	S.RESISTOR ERJ3GEYJ 122 V (1.2 kΩ)
R27	7030003580	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R28	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)
R29	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)
R30	7030003610	S.RESISTOR ERJ3GEYJ 273 V (27 kΩ)
R32	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)
R38	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)
R39	7030003580	S.RESISTOR ERJ3GEYJ 153 V (15 kΩ)
R40	7410000580	S.ARRAY EXB-V4V 474JV (470 kΩ)
R41	7410000580	S.ARRAY EXB-V4V 224JV (220 kΩ)
R42	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)
R43	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)
R44	7030003700	S.RESISTOR ERJ3GEYJ 154 V (150 kΩ)
R45	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)
R46	7030003380	S.RESISTOR ERJ3GEYJ 331 V (330 Ω)
R48	7030003690	S.RESISTOR ERJ3GEYJ 124 V (120 kΩ)
R49	7030003670	S.RESISTOR ERJ3GEYJ 823 V (82 kΩ)
R50	7030003620	S.RESISTOR ERJ3GEYJ 333 V (33 kΩ)
R51	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)
R52	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)
R53	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)
R54	7030003740	S.RESISTOR ERJ3GEYJ 334 V (330 kΩ)
R55	7410000880	S.ARRAY EXB-V4V 393JV (39 kΩ)
R60	7410000910	S.ARRAY EXB-V4V 683JV (68 kΩ)
R62	7410000750	S.ARRAY EXB-V4V 104JV (100 kΩ)
R63	7410000900	S.ARRAY EXB-V4V 105JV (1 MΩ)
R65	7030003880	S.RESISTOR ERJ3GEYJ 244 V (240 kΩ)
R66	7030003730	S.RESISTOR ERJ3GEYJ 274 V (270 kΩ)
R67	7030003880	S.RESISTOR ERJ3GEYJ 244 V (240 kΩ)
R68	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R69	7030003740	S.RESISTOR ERJ3GEYJ 334 V (330 kΩ)
R70	7030003600	S.RESISTOR ERJ3GEYJ 223 V (22 kΩ)
R71	7410000890	S.ARRAY EXB-V4V 124JV (120 kΩ)
R72	7410000820	S.ARRAY EXB-V4V 223JV (22 kΩ)
R73	7410000870	S.ARRAY EXB-V4V 472JV (4.7 kΩ)
R74	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R75	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R78	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R79	7030003630	S.RESISTOR ERJ3GEYJ 393 V (39 kΩ)
R80	7030003630	S.RESISTOR ERJ3GEYJ 393 V (39 kΩ)
R81	7030003550	S.RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)
R82	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)

S.=Surface mount

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R83	7030003700	S.RESISTOR	ERJ3GEYJ 154 V (150 kΩ)
R84	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R85	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R86	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R87	7410000910	S.ARRAY	EXB-V4V 683JV (68 kΩ)
R92	7030003880	S.RESISTOR	ERJ3GEYJ 244 V (240 kΩ)
R93	7030003730	S.RESISTOR	ERJ3GEYJ 274 V (270 kΩ)
R94	7030003880	S.RESISTOR	ERJ3GEYJ 244 V (240 kΩ)
R95	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R96	7030003740	S.RESISTOR	ERJ3GEYJ 334 V (330 kΩ)
R97	7030003800	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R98	7410000600	S.ARRAY	EXB-V4V 222JV (2.2 kΩ)
R104	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R105	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R106	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R107	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R108	7030003630	S.RESISTOR	ERJ3GEYJ 393 V (39 kΩ)
R109	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R110	7030003550	S.RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R111	7030003700	S.RESISTOR	ERJ3GEYJ 334 V (330 kΩ)
R112	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R113	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R114	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R115	7030003740	S.RESISTOR	ERJ3GEYJ 334 V (330 kΩ)
R116	7030003730	S.RESISTOR	ERJ3GEYJ 274 V (270 kΩ)
R117	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R118	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R119	7030003620	S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
R120	7030003670	S.RESISTOR	ERJ3GEYJ 823 V (82 kΩ)
R122	7030003540	S.RESISTOR	ERJ3GEYJ 682 V (6.8 kΩ)
R123	7410000560	S.ARRAY	EXB-V4V 474JV (470 kΩ)
R124	7410000860	S.ARRAY	EXB-V4V 181JV (180 Ω)
R127	7410000850	S.ARRAY	EXB-V4V 151JV (150 Ω)
R129	7030003340	S.RESISTOR	ERJ3GEYJ 151 V (150 Ω)
R130	7030003340	S.RESISTOR	ERJ3GEYJ 151 V (150 Ω)
R131	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R132	7410000840	S.ARRAY	EXB-V4V 583JV (58 kΩ)
R133	7410000590	S.ARRAY	EXB-V4V 473JV (47 kΩ)
R134	7410000720	S.ARRAY	EXB-V8V 473JV (47 kΩ)
R135	7410000820	S.ARRAY	EXB-V4V 223JV (22 kΩ)
R137	7410000750	S.ARRAY	EXB-V4V 104JV (100 kΩ)
R139	7410000900	S.ARRAY	EXB-V4V 105JV (1 MΩ)
R141	7410000580	S.ARRAY	EXB-V4V 224JV (220 kΩ)
R144	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R148	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R149	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R150	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R151	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R152	7030004010	S.RESISTOR	ERJ3GEYJ 2R2 V (2.2 Ω)
R153	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
R154	7410000820	S.ARRAY	EXB-V4V 223JV (22 kΩ)
R155	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
C1	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C4	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C5	4030008960	S.CERAMIC	C2012 JB 1C 104K-T-A
C7	4030007090	S.CERAMIC	C1608 CH 1H 470J-T-A
C8	4030007100	S.CERAMIC	C1608 CH 1H 560J-T-A
C9	4030007030	S.CERAMIC	C1608 CH 1H 150J-T-A
C10	4030007030	S.CERAMIC	C1608 CH 1H 150J-T-A
C11	4030008880	S.CERAMIC	C1608 JB 1C 223K-T-A
C12	4030008880	S.CERAMIC	C1608 JB 1C 223K-T-A
C14	4550004050	S.TANTALUM	F95 0G476MWCAQ2
C15	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C16	4550004480	S.TANTALUM	F95 0J686MFC
C17	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C18	4550004330	S.TANTALUM	F95 1C336MGC
C19	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C20	4550004450	S.TANTALUM	F95 0J475MQAAQ2
C21	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C22	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C24	4550004080	S.TANTALUM	F95 0J336MWCAQ2
C25	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C26	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C27	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C28	4550004450	S.TANTALUM	F95 0J475MQAAQ2
C29	4030006900	S.CERAMIC	C1608 JB 1C 333K-T-A
C30	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C31	4030006880	S.CERAMIC	C1608 JB 1C 223K-T-A
C32	4550004450	S.TANTALUM	F95 0J475MQAAQ2
C33	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C34	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C35	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C36	4030008960	S.CERAMIC	C2012 JB 1C 104K-T-A
C37	4030008470	S.CERAMIC	C1608 JB 1H 272K-T-A
C38	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C39	4030007140	S.CERAMIC	C1608 CH 1H 121J-T-A
C40	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C41	4550004700	S.TANTALUM	F95 1V474MQAAQ2
C45	4030008880	S.CERAMIC	C1608 JB 1C 223K-T-A
C51	4030008960	S.CERAMIC	C2012 JB 1C 104K-T-A
C52	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C53	4030007070	S.CERAMIC	C1608 CH 1H 330J-T-A
C54	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C55	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C58	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C57	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C58	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C59	4550004270	S.TANTALUM	F95 1C105MQAAQ2
C60	4030008960	S.CERAMIC	C2012 JB 1C 104K-T-A
C61	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C62	4030008960	S.CERAMIC	C2012 JB 1C 104K-T-A
C63	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C64	4030006870	S.CERAMIC	C1608 JB 1H 222K-T-A
C65	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C66	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C67	4030008960	S.CERAMIC	C2012 JB 1C 104K-T-A
C68	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C69	4030007070	S.CERAMIC	C1608 CH 1H 330J-T-A
C70	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C71	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C72	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C73	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C74	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C75	4550004270	S.TANTALUM	F95 1C105MQAAQ2
C76	4030008960	S.CERAMIC	C2012 JB 1C 104K-T-A
C77	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C78	4030008960	S.CERAMIC	C2012 JB 1C 104K-T-A
C79	4030006860	S.CERAMIC	C1608 JB 1C 333K-T-A
C80	4030006870	S.CERAMIC	C1608 JB 1H 222K-T-A
C81	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C82	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C83	4030008900	S.CERAMIC	C1608 JB 1C 333K-T-A
C84	4030007070	S.CERAMIC	C1608 CH 1H 330J-T-A
C85	4030007080	S.CERAMIC	C1608 CH 1H 390J-T-A
C86	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C87	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C88	4030008960	S.CERAMIC	C2012 JB 1C 104K-T-A
C89	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C90	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C91	4550004060	S.TANTALUM	F95 0J106MSAAQ2
C94	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C95	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C96	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C97	4030008860	S.CERAMIC	C1608 JB 1C 153K-T-A
C98	4030008860	S.CERAMIC	C1608 JB 1C 153K-T-A
C99	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C100	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C101	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C102	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C108	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C109	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C110	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
SP1	2510000531	SPEAKER	T028S14I0811
BT1	3020000240	LITHIUM	VL1220-1F5U
MC1	7700000861	MICROPHON	WM-62A103

S.=Surface mount

[LOGIC UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
W1	7030003860	S.JUMPER	ERJ3GE JPW V
W2	7030003860	S.JUMPER	ERJ3GE JPW V
W3	7030003860	S.JUMPER	ERJ3GE JPW V
W4	7030003860	S.JUMPER	ERJ3GE JPW V
W5	7030003860	S.JUMPER	ERJ3GE JPW V
W6	7410000760	S.JUMPER	EXB-V4V JPWW
J1	6510012880	S.CONNECTOR	CEW9114-0201
EP1	0910038212	PCB	B 3696B
EP6	8930027610	LCD CONTACT	SRCN-1266

[KEYBOARD UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1540000350	S.TRANSISTOR	2SD2216-S(TX)
Q2	1540000350	S.TRANSISTOR	2SD2216-S(TX)
Q3	1540000350	S.TRANSISTOR	2SD2216-S(TX)
Q4	1540000350	S.TRANSISTOR	2SD2216-S(TX)
Q5	1540000350	S.TRANSISTOR	2SD2216-S(TX)
Q6	1540000350	S.TRANSISTOR	2SD2216-S(TX)
D1	1790000840	S.DIODE	MA132WA(TX)
D2	1790000840	S.DIODE	MA132WA(TX)
R1	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R2	7410000850	S.ARRAY	EXB-V4V 151JV (150 Ω)
R3	7410000850	S.ARRAY	EXB-V4V 151JV (150 Ω)
R4	7410000850	S.ARRAY	EXB-V4V 151JV (150 Ω)
EP1	0910040573	PCB	B 3697C

[VHF RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1120001650	S.IC	TK10487MTR
IC2	1150001100	S.IC	M68321GP-30AD
IC3	1140002210	S.IC	MB1504HPF-G-BND
IC4	1150000960	IC	M67748L / SC1142
Q1	1530002280	S.TRANSISTOR	2SC4081 T107 S
Q2	1530002280	S.TRANSISTOR	2SC4081 T107 S
Q3	1590001180	S.TRANSISTOR	XP1210(TX)
Q4	1530002600	S.TRANSISTOR	2SC4215-O (TE85R)
Q5	1560000550	S.FET	2SK882-Y (TE85R)
Q6	1590000650	S.TRANSISTOR	DTA144TU T107
Q8	1530002560	S.TRANSISTOR	2SC4403-3-TR
Q9	1530002920	S.TRANSISTOR	2SC4226-T2 R25
Q10	1510000510	S.TRANSISTOR	2SA1578 T107 R
Q11	1510000830	S.TRANSISTOR	2SA1587-GR (TE85R)
Q12	1530003010	S.TRANSISTOR	2SC4117-GR (TE85R)
Q13	1560000540	S.FET	2SK880-Y (TE85R)
Q14	1590000680	S.TRANSISTOR	DTC114EU T107
Q15	1530002560	S.TRANSISTOR	2SC4403-3-TR
Q17	1530002570	S.TRANSISTOR	2SC4405-3-TR
Q18	1530002570	S.TRANSISTOR	2SC4405-3-TR
Q19	1590001690	S.TRANSISTOR	UN9115(TX)
Q20	1530002280	S.TRANSISTOR	2SC4081 T107 S
Q21	1510000620	S.TRANSISTOR	2SA1578 T107 S
Q22	1590000430	S.TRANSISTOR	DTC144EU T107
Q23	1590000440	S.TRANSISTOR	DTA143ZU T107
Q24	1530002280	S.TRANSISTOR	2SC4081 T107 S
Q25	1510000620	S.TRANSISTOR	2SA1578 T107 S
Q26	1530002280	S.TRANSISTOR	2SC4081 T107 S
Q27	1520000200	S.TRANSISTOR	2SB798-T2 DK

[VHF RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
Q28	1590000720	S.TRANSISTOR	DTA144EU T107
Q29	1590000430	S.TRANSISTOR	DTC144EU T107
Q30	1590000650	S.TRANSISTOR	DTA144TU T107
Q31	1510000670	S.TRANSISTOR	2SA1588-GR (TE85R)
Q32	1590000680	S.TRANSISTOR	DTC114EU T107
Q33	1590001150	S.TRANSISTOR	UN9211(TX)
D1	1790000620	S.DIODE	MA77(TW)
D2	1790000620	S.DIODE	MA77(TW)
D3	1790000620	S.DIODE	MA77(TW)
D4	1790000620	S.DIODE	MA77(TW)
D5	1790000620	S.DIODE	MA77(TW)
D6	1720000240	S.DIODE	1SV172 (TE85R)
D7	1790000620	S.DIODE	MA77(TW)
D8	1790000620	S.DIODE	MA77(TW)
D9	1720000360	S.DIODE	HSU88TRF
D10	1720000360	S.DIODE	HSU88TRF
D11	1790000590	S.DIODE	MA110(TW)
D12	1790000450	S.DIODE	MA862(TX)
D13	1790000590	S.DIODE	MA110(TW)
D14	1790000590	S.DIODE	MA110(TW)
D15	1790000590	S.DIODE	MA110(TW)
D16	1790000450	S.DIODE	MA862(TX)
D18	1790000590	S.DIODE	MA110(TW)
D19	1790000620	S.DIODE	MA77(TW)
F11	2020000550	CERAMIC	CFUM455E
F12	2010001530	MONOLITH	FL-189 43.100MHZ
X1	6070000060	DISCR I	CDBM455C7
X2	6050008400	XTAL	CR-419 42.645MHZ
L1	6150004080	COIL	LS-487
L3	6200001650	S.COIL	ELJNC 18NK-F
L4	6200002530	S.COIL	LL2012-F33NK
L5	6200002670	S.COIL	LL2012-F47NK
L6	6200002820	S.COIL	LQN 1A 47NJ04
L7	6200002380	S.COIL	LQN 1A 56NJ04
L8	6200002370	S.COIL	LQN 1A 39NJ04
L9	6200002380	S.COIL	LQN 1A 56NJ04
L12	6200001500	S.COIL	MLF2012D R12K-T
L13	6200001500	S.COIL	MLF2012D R12K-T
L14	6200002160	S.COIL	ELJNC 82NK-F
L15	6200001060	S.COIL	MLF2012D 47NM-T
L16	6200003440	S.COIL	ELJNC 39NK-F
L17	6200001520	S.COIL	MLF2012D R82K-T
L19	6200002230	S.COIL	LL2012-F22NK
L20	6200002670	S.COIL	LL2012-F47NK
L21	6200002230	S.COIL	LL2012-F22NK
R1	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R2	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R4	7310003720	S.TRIMMER	EVM-1XSX50 B23 (202)
R5	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R7	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R8	7030003550	S.RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R9	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R10	7030003840	S.RESISTOR	ERJ3GEYJ 225 V (2.2 MΩ)
R11	7030003490	S.RESISTOR	ERJ3GEYJ 272 V (2.7 kΩ)
R12	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R13	7030003740	S.RESISTOR	ERJ3GEYJ 334 V (330 kΩ)
R14	7030003710	S.RESISTOR	ERJ3GEYJ 184 V (180 kΩ)
R15	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R16	7030003340	S.RESISTOR	ERJ3GEYJ 151 V (150 Ω)
R17	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R18	7030003300	S.RESISTOR	ERJ3GEYJ 680 V (68 Ω)
R19	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R20	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R22	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R23	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R24	7030003290	S.RESISTOR	ERJ3GEYJ 560 V (56 Ω)

S.=Surface mount

[VHF RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C109	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C110	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C112	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C113	4510005600	S.ELECTROLITIC	ECEV1CS100SR
C114	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C115	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C116	4030009510	S.CERAMIC	C1608 CH 1H 010B-T-A
C124	4030007010	S.CERAMIC	C1608 CH 1H 100D-T-A
C137	4550004440	S.TANTALUM	F95 0J335MQAAQ2
C140	4030007080	S.CERAMIC	C1608 CH 1H 270J-T-A
C160	4550000460	S.TANTALUM	TESVA 1C 105M1-8L
C161	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
W2	7030003860	S.JUMPER	ERJ3GE JPW V
J1	6510012720	CONNECTOR	53020-1410
J2	6510005350	CONNECTOR	5512-06A
EP1	0910039983	PCB	B 3943C

[VHF RF A BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1530002570	S.TRANSISTOR	2SC4405-3-TR
Q2	1530002570	S.TRANSISTOR	2SC4405-3-TR
D1	1790000620	S.DIODE	MA77(TW)
D2	1720000370	S.VARICAP	HVU350TRF
D3	1790000620	S.DIODE	MA77(TW)
D4	1720000370	S.VARICAP	HVU350TRF
D5	1720000370	S.VARICAP	HVU350TRF
D6	1790000620	S.DIODE	MA77(TW)
R1	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R2	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R3	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R4	7030003530	S.RESISTOR	ERJ3GEYJ 562 V (5.6 kΩ)
R5	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R6	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R7	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R8	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R9	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R10	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R11	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R14	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
C1	4030007030	S.CERAMIC	C1608 CH 1H 150J-T-A
C2	4030007090	S.CERAMIC	C1608 CH 1H 470J-T-A
C3	4030007000	S.CERAMIC	C1608 CH 1H 090D-T-A
C4	4030006980	S.CERAMIC	C1608 CH 1H 070D-T-A
C5	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C6	4030006990	S.CERAMIC	C1608 CH 1H 080D-T-A
C7	4030007100	S.CERAMIC	C1608 CH 1H 560J-T-A
C9	4030006960	S.CERAMIC	C1608 CH 1H 050C-T-A
C10	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C11	4030007100	S.CERAMIC	C1608 CH 1H 560J-T-A
C12	4030007000	S.CERAMIC	C1608 CH 1H 090D-T-A
C13	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C18	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C20	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C21	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C22	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
EP1	0910040620	PCB	B 3710
EP3	6510008580	LEADFRAM	PT2.0-0.7-16.5 (K)

[VHF RFB BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
L1	6150003120	COIL	LS-321
L2	6130002680	COIL	LB-299
L3	6130002690	COIL	LB-300
EP1	0910037620	PCB	B 3717

[VHF APC BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1530002280	S.TRANSISTOR	2SC4081 T107 S
Q2	1520000200	S.TRANSISTOR	2SB798-T2 DK
Q3	1510000510	S.TRANSISTOR	2SA1576 T107 R
Q4	1590000620	S.TRANSISTOR	FMS1 T148
Q5	1540000410	S.TRANSISTOR	2SD2345(TX)S
D1	1790000590	S.DIODE	MA110(TW)
D2	1790000850	S.DIODE	MA132WK(TX)
R1	7030003470	S.RESISTOR	ERJ3GEYJ 182 V (1.8 kΩ)
R2	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R3	7510000200	S.THERMISTOR	TN20-3U473LT
R4	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R5	7030003650	S.RESISTOR	ERJ3GEYJ 563 V (56 kΩ)
R6	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R7	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R8	7030003650	S.RESISTOR	ERJ3GEYJ 563 V (56 kΩ)
R11	7310003520	S.TRIMMER	RV-224 (RH03AVA15)104
R12	7030003620	S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
R13	7310003520	S.TRIMMER	RV-224 (RH03AVA15)104
R14	7030003620	S.RESISTOR	ERJ3GEYJ 333 V (33 kΩ)
C1	4030008630	S.CERAMIC	C1608 JF 1C 104Z-T-A
C2	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C3	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C4	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C5	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C6	4510005600	S.ELECTROLITIC	ECEV1CS100SR
C7	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C8	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C10	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
EP1	0910040021	PCB	B 3993A
EP2	6910003110	LEADFRAM	HFB2.0-0.7-8 (N)

[VHF VCO BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1530002920	S.TRANSISTOR	2SC4226-T2 R25
Q2	1530002920	S.TRANSISTOR	2SC4226-T2 R25
Q3	1530002560	S.TRANSISTOR	2SC4403-3-TR
D1	1790000620	S.DIODE	MA77(TW)
D2	1720000370	S.VARICAP	HVU350TRF
L1	6200001520	S.COIL	MLF2012D R82K-T
L2	6130002660	S.COIL	LB-287
L3	6200001630	S.COIL	ELJNC R10K-F
R1	7030003720	S.RESISTOR	ERJ3GEYJ 224 V (220 kΩ)
R2	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R3	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R4	7030003730	S.RESISTOR	ERJ3GEYJ 274 V (270 kΩ)
R5	7030003550	S.RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R6	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)
R7	7030003550	S.RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R8	7030003330	S.RESISTOR	ERJ3GEYJ 121 V (120 Ω)

S.=Surface mount

[VHF VCO BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
R9	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R10	7030003650	S.RESISTOR	ERJ3GEYJ 563 V (56 kΩ)
R11	7030003370	S.RESISTOR	ERJ3GEYJ 271 V (270 Ω)
R12	7030003220	S.RESISTOR	ERJ3GEYJ 150 V (15 Ω)
R13	7030003220	S.RESISTOR	ERJ3GEYJ 150 V (15 Ω)
R14	7030003220	S.RESISTOR	ERJ3GEYJ 150 V (15 Ω)
R15	7030003480	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
C1	4030007050	S.CERAMIC	C1608 CH 1H 220J-T-A
C2	4030008860	S.CERAMIC	C1608 JB 1H 102K-T-A
C3	4030008860	S.CERAMIC	C1608 JB 1H 102K-T-A
C4	4030008860	S.CERAMIC	C1608 JB 1H 102K-T-A
C5	4030008860	S.CERAMIC	C1608 JB 1H 102K-T-A
C6	4030008920	S.CERAMIC	C1608 CH 1H 010C-T-A
C7	4030008920	S.CERAMIC	C1608 CH 1H 010C-T-A
C8	4030008860	S.CERAMIC	C1608 JB 1H 102K-T-A
C9	4030008860	S.CERAMIC	C1608 JB 1H 102K-T-A
C10	4030008860	S.CERAMIC	C1608 JB 1H 102K-T-A
C11	4030009510	S.CERAMIC	C1608 CH 1H 010B-T-A
C12	4030008860	S.CERAMIC	C1608 JB 1H 102K-T-A
C13	4030007020	S.CERAMIC	C1608 CH 1H 120J-T-A
EP1	0910040612	PCB	B 3522B

[VHF DATA BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1130004170	S.IC	TC4S01F (TE85R)
IC2	1130003760	S.IC	TC4S81F (TE85R)
IC3	1130003760	S.IC	TC4S81F (TE85R)
IC4	1130003760	S.IC	TC4S81F (TE85R)
R1	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R2	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R3	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
EP1	0910040601	PCB	B 3735A
EP2	6910003110	LEADFRAM	HFB2.0-0.7-8 (N)

[220 RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110002790	S.IC	MC3372DR
IC3	1150001100	S.IC	M66321GP-30AD
IC4	1140002210	S.IC	MB1504HPF-G-BND
IC5	1150001380	IC	M67748UH/SC1258
IC8	1130007020	S.IC	TC7S86FU(TE85R)
Q1	1530002600	S.TRANSISTOR	2SC4215-O (TE85R)
Q2	1530002560	S.TRANSISTOR	2SC4403-3-TR
Q3	1590000740	S.TRANSISTOR	FMA4 T148
Q6	1510000510	S.TRANSISTOR	2SA1576 T107 R
Q7	1590000440	S.TRANSISTOR	DTA143ZU T107
Q8	1590000430	S.TRANSISTOR	DTC144EU T107
Q9	1510000820	S.TRANSISTOR	2SA1587-BL (TE85R)
Q10	1530003010	S.TRANSISTOR	2SC4117-GR (TE85R)
Q11	1530002920	S.TRANSISTOR	2SC4226-T2 R25
Q12	1590001470	S.TRANSISTOR	UN9213(TX)
Q13	1530002570	S.TRANSISTOR	2SC4405-3-TR
Q14	1510000670	S.TRANSISTOR	2SA1588-GR (TE85R)
Q15	1530002580	S.TRANSISTOR	2SC4403-3-TR
Q16	1530002240	S.TRANSISTOR	2SC3775-3-TA
Q17	1590001060	S.TRANSISTOR	DTA114TU T107
Q18	1530002280	S.TRANSISTOR	2SC4081 T107 S

[220 RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
Q19	1510000620	S.TRANSISTOR	2SA1576 T107 S
Q20	1530002280	S.TRANSISTOR	2SC4081 T107 S
Q21	1520000200	S.TRANSISTOR	2SB798-T2 DK
Q22	1530002280	S.TRANSISTOR	2SC4081 T107 S
Q23	1510000620	S.TRANSISTOR	2SA1576 T107 S
Q25	1590000680	S.TRANSISTOR	DTC114EU T107
Q32	1590001150	S.TRANSISTOR	UN9211(TX)
Q33	1530003010	S.TRANSISTOR	2SC4117-GR (TE85R)
Q40	1530002920	S.TRANSISTOR	2SC4226-T2 R25
D5	1790000620	S.DIODE	MA77(TW)
D6	1790000620	S.DIODE	MA77(TW)
D7	1790000620	S.DIODE	MA77(TW)
D8	1790000620	S.DIODE	MA77(TW)
D9	1790000620	S.DIODE	MA77(TW)
D11	1790000620	S.DIODE	MA77(TW)
D12	1720000360	S.DIODE	HSU88TRF
D13	1720000360	S.DIODE	HSU88TRF
D14	1790000590	S.DIODE	MA110(TW)
D15	1790000450	S.DIODE	MA862(TX)
D16	1790000590	S.DIODE	MA110(TW)
D17	1790000590	S.DIODE	MA110(TW)
D18	1750000160	S.DIODE	DA114 T107
D19	1790000620	S.DIODE	MA77(TW)
D20	1790000620	S.DIODE	MA77(TW)
D21	1790000620	S.DIODE	MA77(TW)
D22	1790000620	S.DIODE	MA77(TW)
D23	1790001030	S.DIODE	SB30-03P-TD
D24	1790000620	S.DIODE	MA77(TW)
D28	1750000350	S.VARICAP	1SV252(TE85R)
FI1	2020000550	CERAMIC	CFUM455E
FI2	2010001550	FILTER	FL-190 UM-53P 45.150MHz
X1	6070000080	DISCRI	CDBM455C16
X2	6050008520	XTAL	CR-426
X3	6050007231	XTAL	CR-329
L1	6200002710	S.COIL	ELJFC 1R8K-F
L5	6200002340	S.COIL	LQN 1A 23NJ04
L6	6200002340	S.COIL	LQN 1A 23NJ04
L8	6200002370	S.COIL	LQN 1A 39NJ04
L9	6200002820	S.COIL	LQN 1A 47NJ04
L10	6200002360	S.COIL	LQN 1A 33NJ04
L12	6200002380	S.COIL	LQN 1A 56NJ04
L18	6200001510	S.COIL	MLF2012D R10K-T
L20	6200003410	S.COIL	LL2012-F68NK
L22	6200003410	S.COIL	LL2012-F68NK
L23	6200003410	S.COIL	LL2012-F68NK
L25	6200002350	S.COIL	LQN 1A 27NJ04
L26	6200001700	S.COIL	MLF2012D R47K-T
L29	6200002390	S.COIL	LQN 1A 64NJ04
L30	6200001850	S.COIL	ELJNC 18NK-F
L31	6200003410	S.COIL	LL2012-F68NK
L32	6200003410	S.COIL	LL2012-F68NK
L33	6200003410	S.COIL	LL2012-F68NK
L34	6200000070	S.COIL	LQN 2A R15K
L35	6200002380	S.COIL	LQN 1A 56NJ04
L37	6200002370	S.COIL	LQN 1A 39NJ04
L38	6200002350	S.COIL	LQN 1A 27NJ04
L39	6200002710	S.COIL	ELJFC 1R8K-F
R1	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)
R2	7030003510	S.RESISTOR	ERJ3GEYJ 392 V (3.9 kΩ)
R3	7030003200	S.RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R4	7310003720	S.TRIMMER	EVM-1XSX50 B23 (202)
R5	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R6	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R8	7030003430	S.RESISTOR	ERJ3GEYJ 821 V (820 Ω)
R9	7030003670	S.RESISTOR	ERJ3GEYJ 823 V (82 kΩ)
R10	7030003400	S.RESISTOR	ERJ3GEYJ 471 V (470 Ω)

S.=Surface mount

[220 RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
R11	7030003460	S.RESISTOR ERJ3GEYJ 152 V (1.5 kΩ)
R12	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)
R14	7030003700	S.RESISTOR ERJ3GEYJ 154 V (150 kΩ)
R15	7030003660	S.RESISTOR ERJ3GEYJ 683 V (68 kΩ)
R24	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)
R25	7030003720	S.RESISTOR ERJ3GEYJ 224 V (220 kΩ)
R26	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)
R27	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)
R33	7030003840	S.RESISTOR ERJ3GEYJ 225 V (2.2 MΩ)
R34	7030003570	S.RESISTOR ERJ3GEYJ 123 V (12 kΩ)
R35	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R36	7030003570	S.RESISTOR ERJ3GEYJ 123 V (12 kΩ)
R37	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R38	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R39	7030003480	S.RESISTOR ERJ3GEYJ 222 V (2.2 kΩ)
R40	7030003550	S.RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)
R41	7030003660	S.RESISTOR ERJ3GEYJ 683 V (68 kΩ)
R42	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)
R45	7030003610	S.RESISTOR ERJ3GEYJ 273 V (27 kΩ)
R46	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)
R49	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R50	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R51	7030003550	S.RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)
R52	7030003500	S.RESISTOR ERJ3GEYJ 332 V (3.3 kΩ)
R53	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R55	7030003250	S.RESISTOR ERJ3GEYJ 270 V (27 Ω)
R56	7030003420	S.RESISTOR ERJ3GEYJ 681 V (680 Ω)
R57	7030003360	S.RESISTOR ERJ3GEYJ 221 V (220 Ω)
R58	7030003210	S.RESISTOR ERJ3GEYJ 120 V (12 Ω)
R59	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R60	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R61	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R62	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)
R64	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)
R65	7030003540	S.RESISTOR ERJ3GEYJ 682 V (6.8 kΩ)
R66	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)
R67	7030003550	S.RESISTOR ERJ3GEYJ 822 V (8.2 kΩ)
R68	7030003540	S.RESISTOR ERJ3GEYJ 682 V (6.8 kΩ)
R69	7030003400	S.RESISTOR ERJ3GEYJ 471 V (470 Ω)
R70	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)
R71	7030000330	S.RESISTOR MCR10EZJ 390 Ω (391)
R72	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R73	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R74	7030003540	S.RESISTOR ERJ3GEYJ 682 V (6.8 kΩ)
R75	7510000180	S.THERMISTOR TN20-3S223LT
R76	7030003570	S.RESISTOR ERJ3GEYJ 123 V (12 kΩ)
R77	7310003600	S.TRIMMER EVM-1XSX50 B54 (503)
R78	7030003500	S.RESISTOR ERJ3GEYJ 332 V (3.3 kΩ)
R79	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R80	7030003700	S.RESISTOR ERJ3GEYJ 154 V (150 kΩ)
R81	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R86	7030003680	S.RESISTOR ERJ3GEYJ 104 V (100 kΩ)
R88	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R89	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R90	7030000260	S.RESISTOR MCR10EZJ 100 Ω (101)
R91	7030003560	S.RESISTOR ERJ3GEYJ 103 V (10 kΩ)
R92	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)
R104	7030003220	S.RESISTOR ERJ3GEYJ 150 V (15 Ω)
R105	7030003220	S.RESISTOR ERJ3GEYJ 150 V (15 Ω)
R108	7030003250	S.RESISTOR ERJ3GEYJ 270 V (27 Ω)
R110	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)
R111	7030003740	S.RESISTOR ERJ3GEYJ 334 V (330 kΩ)
R112	7510000440	S.THERMISTOR TN20-3E681LT
R113	7030003460	S.RESISTOR ERJ3GEYJ 152 V (1.5 kΩ)
R114	7030003440	S.RESISTOR ERJ3GEYJ 102 V (1 kΩ)
R150	7030003320	S.RESISTOR ERJ3GEYJ 101 V (100 Ω)
R151	7030003280	S.RESISTOR ERJ3GEYJ 470 V (47 Ω)
R152	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)
R154	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R155	7030003520	S.RESISTOR ERJ3GEYJ 472 V (4.7 kΩ)
R156	7030003640	S.RESISTOR ERJ3GEYJ 473 V (47 kΩ)
R157	7030003410	S.RESISTOR ERJ3GEYJ 561 V (560 Ω)
R158	7030003750	S.RESISTOR ERJ3GEYJ 394 V (390 kΩ)
C1	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A

[220 RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION
C2	4030010070	S.CERAMIC C1608 X7S 1C 104K-T-A
C3	4030010070	S.CERAMIC C1608 X7S 1C 104K-T-A
C4	4030010070	S.CERAMIC C1608 X7S 1C 104K-T-A
C5	4030010070	S.CERAMIC C1608 X7S 1C 104K-T-A
C6	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C7	4030007010	S.CERAMIC C1608 CH 1H 100D-T-A
C8	4030009520	S.CERAMIC C1608 CH 1H 020B-T-A
C10	4030007020	S.CERAMIC C1608 CH 1H 120J-T-A
C11	4030006900	S.CERAMIC C1608 JB 1E 103K-T-A
C12	4030007020	S.CERAMIC C1608 CH 1H 120J-T-A
C13	4030006980	S.CERAMIC C1608 CH 1H 070D-T-A
C14	4030008960	S.CERAMIC C2012 JB 1C 104K-T-A
C17	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C29	4030007020	S.CERAMIC C1608 CH 1H 120J-T-A
C30	4030007060	S.CERAMIC C1608 CH 1H 270J-T-A
C31	4030007030	S.CERAMIC C1608 CH 1H 150J-T-A
C35	4030007020	S.CERAMIC C1608 CH 1H 150J-T-A
C36	4030009510	S.CERAMIC C1608 CH 1H 010B-T-A
C37	4030007010	S.CERAMIC C1608 CH 1H 100D-T-A
C38	4030009500	S.CERAMIC C1608 CH 1H 0R5B-T-A
C39	4030007040	S.CERAMIC C1608 CH 1H 180J-T-A
C44	4030007030	S.CERAMIC C1608 CH 1H 150J-T-A
C46	4030009650	S.CERAMIC C1608 CH 1H 240J-T-A
C61	4030007050	S.CERAMIC C1608 CH 1H 120J-T-A
C62	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C63	4550002950	S.TANTALUM TESVA 0J 335M1-8L
C64	4030008920	S.CERAMIC C1608 JB 1C 473K-T-A
C66	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C67	4550003030	S.TANTALUM TEMSVA 0J 475M-8L
C68	4030008960	S.CERAMIC C2012 JB 1C 104K-T-A
C69	4550003030	S.TANTALUM TEMSVA 0J 475M-8L
C70	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C71	4550000530	S.TANTALUM TESVA 1V 104M1-8L
C72	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C73	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C74	4030006930	S.CERAMIC C1608 CH 1H 020C-T-A
C75	4030006850	S.CERAMIC C1608 JB 1H 471K-T-A
C77	4030007000	S.CERAMIC C1608 CH 1H 090D-T-A
C78	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C82	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C83	4550003040	S.TANTALUM TEMSVB2 0J 106M-8L
C84	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C87	4030006980	S.CERAMIC C1608 CH 1H 070D-T-A
C88	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C90	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C91	4030007120	S.CERAMIC C1608 CH 1H 820J-T-A
C92	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C95	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C96	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C97	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C98	4510004430	S.ELECTROLITIC ECEV1CV220WR
C99	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C100	4030006980	S.CERAMIC C1608 CH 1H 070D-T-A
C101	4030006980	S.CERAMIC C1608 CH 1H 070D-T-A
C102	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C103	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C104	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C106	4030008960	S.CERAMIC C2012 JB 1C 104K-T-A
C107	4030008920	S.CERAMIC C1608 JB 1C 473K-T-A
C108	4510004420	S.ELECTROLITIC ECEV0JV330SR
C109	4030006850	S.CERAMIC C1608 JB 1H 471K-T-A
C110	4510005600	S.ELECTROLITIC ECEV1CS100SR
C111	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C112	4550000550	S.TANTALUM TESVA 1V 224M1-8L
C113	4030006880	S.CERAMIC C1608 JB 1H 472K-T-A
C114	4030009000	S.CERAMIC C2012 JB 1C 224K-T-A
C115	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C116	4550000550	S.TANTALUM TESVA 1V 224M1-8L
C117	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C118	4550000550	S.TANTALUM TESVA 1V 224M1-8L
C119	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C121	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C122	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C123	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C124	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A
C125	4030006860	S.CERAMIC C1608 JB 1H 102K-T-A

S.=Surface mount

[220 RF UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
C126	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C128	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C129	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C130	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C132	4550004500	S.TANTALUM	F95 1D105MQAAQ2
C133	4030007140	S.CERAMIC	C1608 CH 1H 121J-T-A
C134	4550004440	S.TANTALUM	F95 0J335MQAAQ2
C135	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C136	4030007010	S.CERAMIC	C1608 CH 1H 100D-T-A
C137	4030007070	S.CERAMIC	C1608 CH 1H 330J-T-A
C139	4030007030	S.CERAMIC	C1608 CH 1H 150J-T-A
C140	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C141	4550003250	S.TANTALUM	TEMSVA 1V 474M-8L
C142	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C143	4030009920	S.CERAMIC	C1608 CH 1H 0R5B-T-A
C145	4030009510	S.CERAMIC	C1608 CH 1H 010B-T-A
C146	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C147	4030009540	S.CERAMIC	C1608 CH 1H 1R5B-T-A
C149	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C150	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C151	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C152	4030007070	S.CERAMIC	C1608 CH 1H 330J-T-A
C153	4030007040	S.CERAMIC	C1608 CH 1H 180J-T-A
C154	4030007070	S.CERAMIC	C1608 CH 1H 330J-T-A
C155	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C156	4030006960	S.CERAMIC	C1608 CH 1H 050C-T-A
C157	4030007060	S.CERAMIC	C1608 CH 1H 270J-T-A
C158	4030008560	S.CERAMIC	C1608 CH 1H 300J-T-A
C159	4030006940	S.CERAMIC	C1608 CH 1H 030C-T-A
C160	4030009650	S.CERAMIC	C1608 CH 1H 240J-T-A
C161	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C162	4030009920	S.CERAMIC	C1608 CH 1H 050B-T-A
C163	4030007160	S.CERAMIC	C1608 CH 1H 181J-T-A
C164	4030007140	S.CERAMIC	C1608 CH 1H 121J-T-A
C165	4030007050	S.CERAMIC	C1608 CH 1H 220J-T-A
C166	4030007170	S.CERAMIC	C1608 CH 1H 221J-T-A
C167	4610000520	S.TRIMMER	TZB04N100BA006
C168	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C169	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C173	4030006970	S.CERAMIC	C1608 CH 1H 060D-T-A
C176	4030007080	S.CERAMIC	C1608 CH 1H 390J-T-A
C177	4030007050	S.CERAMIC	C1608 CH 1H 220J-T-A
C178	4030006980	S.CERAMIC	C1608 CH 1H 070D-T-A
C179	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C180	4030007060	S.CERAMIC	C1608 CH 1H 270J-T-A
W6	7030003860	S.JUMPER	ERJ3GE JPW V
W7	7030003860	S.JUMPER	ERJ3GE JPW V
W9	7030003860	S.JUMPER	ERJ3GE JPW V
W11	7030003860	S.JUMPER	ERJ3GE JPW V
J1	6510012750	CONNECTOR	53020-2010
J2	6510005730	CONNECTOR	5513-06CPB
J3	6450000130	CONNECTOR	HSJ1102-01-540 [MIC]
J4	6450001060	CONNECTOR	HSJ1493-01-010 [SP]
EP1	0910039993	PCB	B 3944C

[220 RFA BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1530003170	S.TRANSISTOR	2SC4863-4-TR
Q2	1530002570	S.TRANSISTOR	2SC4405-3-TR
R3	7030003340	S.RESISTOR	ERJ3GEYJ 151 V (150 Ω)
R4	7030003650	S.RESISTOR	ERJ3GEYJ 563 V (56 kΩ)
R5	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
R10	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R11	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)

[220 RFA BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
R14	7030003280	S.RESISTOR	ERJ3GEYJ 470 V (47 Ω)
C1	4030007010	S.CERAMIC	C1608 CH 1H 100D-T-A
C2	4030007080	S.CERAMIC	C1608 CH 1H 270J-T-A
C4	4030006960	S.CERAMIC	C1608 CH 1H 050C-T-A
C5	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C7	4030007010	S.CERAMIC	C1608 CH 1H 100D-T-A
C9	4030009560	S.CERAMIC	C1608 CH 1H R75B-T-A
C12	4030009530	S.CERAMIC	C1608 CH 1H 030B-T-A
C18	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C20	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C21	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C22	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
EP1	0910040002	PCB	B 3959B

[220 RFB BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
L1	6150002970	COIL	LS-308
L2	6150002970	COIL	LS-308
L3	6150002970	COIL	LS-308
EP1	0910040010	PCB	B 3985

[220 APC BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1530002280	S.TRANSISTOR	2SC4081 T107 S
Q2	1520000200	S.TRANSISTOR	2SB798-T2 DK
Q3	1510000510	S.TRANSISTOR	2SA1576 T107 R
Q4	1590000620	S.TRANSISTOR	FMS1 T148
Q5	1530002280	S.TRANSISTOR	2SC4081 T107 S
D1	1790000590	S.DIODE	MA110(TW)
D2	1160000060	S.DIODE	DAN202U T107
R1	7030003470	S.RESISTOR	ERJ3GEYJ 182 V (1.8 kΩ)
R2	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R3	7510000200	S.THERMISTOR	TN20-3U473LT
R4	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R5	7030003670	S.RESISTOR	ERJ3GEYJ 823 V (82 kΩ)
R6	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R7	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R8	7030003770	S.RESISTOR	ERJ3GEYJ 564 V (560 kΩ)
C1	4030006830	S.CERAMIC	C1608 JF 1C 104Z-T-A
C2	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C3	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C4	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C5	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C6	4550003040	S.TANTALUM	TEMSVB2 0J 106M-8L
C7	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C8	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C10	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
EP1	0910040030	PCB	B 3994
EP2	6910003110	LEADFRAM	HFB2.0-0.7-8 (N)

S.=Surface mount

[220 VCO BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1530002920	S.TRANSISTOR	2SC4228-T2 R25
Q2	1530002920	S.TRANSISTOR	2SC4228-T2 R25
Q3	1530002920	S.TRANSISTOR	2SC4228-T2 R25
Q4	1540000410	S.TRANSISTOR	2SD2345(TX)S
D1	1790000620	S.DIODE	MA77(TW)
D2	1720000370	S.VARICAP	HVU350TRF
D3	1790000840	S.DIODE	MA132WA(TX)
L1	8200001520	S.COIL	MLF2012D R82K-T
L2	8130002700	S.COIL	LB-297
R1	7030003460	S.RESISTOR	ERJ3GEYJ 152 V (1.5 kΩ)
R2	7030005110	S.RESISTOR	ERJ2GEJ 224 X (220 kΩ)
R3	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)
R4	7030003550	S.RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R5	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)
R6	7030003550	S.RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R7	7030003360	S.RESISTOR	ERJ3GEYJ 221 V (220 Ω)
R8	7030005040	S.RESISTOR	ERJ2GEJ 472 X (4.7 kΩ)
R9	7030005070	S.RESISTOR	ERJ2GEJ 683 X (68 kΩ)
R10	7030003340	S.RESISTOR	ERJ3GEYJ 151 V (150 Ω)
R11	7030000320	S.RESISTOR	MCR10EZHZ 330 Ω (331)
R12	7030003220	S.RESISTOR	ERJ3GEYJ 150 V (15 Ω)
C1	4030007030	S.CERAMIC	C1608 CH 1H 150J-T-A
C2	4030007080	S.CERAMIC	C1608 CH 1H 390J-T-A
C3	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C4	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C5	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C6	4030009510	S.CERAMIC	C1608 CH 1H 010B-T-A
C7	4030009540	S.CERAMIC	C1608 CH 1H 1R5B-T-A
C8	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C9	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C10	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C11	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C12	4550004060	S.TANTALUM	F95 OJ106MSAAQ2
C13	4030009560	S.CERAMIC	C1608 CH 1H R75B-T-A
C14	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
EP1	0910040562	PCB	B 3690B

[220 DATA BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1130004170	S.IC	TC4S01F (TE85R)
IC2	1130003760	S.IC	TC4S81F (TE85R)
IC3	1130003760	S.IC	TC4S81F (TE85R)
IC4	1130003760	S.IC	TC4S81F (TE85R)
R1	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R2	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R3	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
C1	4550004060	S.TANTALUM	F95 OJ106MSAAQ2
EP1	0910040040	PCB	B 4021
EP2	6910003110	LEADFRAM	HFB2.0-0.7-8 (N)

[AF BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1110002420	S.IC	NJM2073M(T1)
Q1	1590001170	S.TRANSISTOR	XP1501-(TX).AB
Q2	1520000270	S.TRANSISTOR	2SB1182 TL Q
R1	7030003200	S.RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R2	7030003200	S.RESISTOR	ERJ3GEYJ 100 V (10 Ω)
R3	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R4	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R5	7030003330	S.RESISTOR	ERJ3GEYJ 121 V (120 Ω)
R6	7030003330	S.RESISTOR	ERJ3GEYJ 121 V (120 Ω)
R7	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R8	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R9	7030003550	S.RESISTOR	ERJ3GEYJ 822 V (8.2 kΩ)
R10	7030003450	S.RESISTOR	ERJ3GEYJ 122 V (1.2 kΩ)
R11	7030003760	S.RESISTOR	ERJ3GEYJ 474 V (470 kΩ)
R12	7030003490	S.RESISTOR	ERJ3GEYJ 272 V (2.7 kΩ)
C1	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C2	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C3	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C4	4510005610	ELECTROLITIC	ECA 0JG 101X
C5	4510005610	ELECTROLITIC	ECA 0JG 101X
C6	4550003030	S.TANTALUM	TEMSVA 0J 475M-8L
C7	4030008850	S.CERAMIC	C1608 JB 1H 471K-T-A
C8	4550003030	S.TANTALUM	TEMSVA 0J 475M-8L
C9	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C10	4030008850	S.CERAMIC	C1608 JB 1H 471K-T-A
C11	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C12	4510005610	ELECTROLITIC	ECA 0JG 101X
C13	4030008850	S.CERAMIC	C1608 JB 1H 471K-T-A
C14	4030008850	S.CERAMIC	C1608 JB 1H 471K-T-A
EP1	6910003420	LEADFRAM	AR1.27-0.7-12.3
EP2	0910040632	PCB	B 3699B

[DC-J BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
C1	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
J1	6450001080	CONNECTOR	HEC3800-01-010 [DC12.5V]
EP1	0910040590	PCB	B 3798

[CONNECT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
Q1	1520000200	S.TRANSISTOR	2SB798-T2 DK
Q2	1530002280	S.TRANSISTOR	2SC4081 T107 S
D1	1790001030	S.DIODE	SB30-03P-TD
D2	1790000670	S.DIODE	SB07-03C-TA
D5	1790000590	S.DIODE	MA110(TW)
D6	1730002180	S.ZENER	02CZ5.1-Z (TE85R)
D7	1790000590	S.DIODE	MA110(TW)
R1	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R2	7030003380	S.RESISTOR	ERJ3GEYJ 331 V (330 Ω)
R3	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R4	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R5	7030003470	S.RESISTOR	ERJ3GEYJ 182 V (1.8 kΩ)
R6	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)

S.=Surface mount

[CONNECT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
R7	7030003320	S.RESISTOR	ERJ3GEYJ 101 V (100 Ω)
R8	7030003440	S.RESISTOR	ERJ3GEYJ 102 V (1 kΩ)
R9	7030003250	S.RESISTOR	ERJ3GEYJ 270 V (27 Ω)
R10	7030000080	S.RESISTOR	MCR10EZHZJ 3.3 Ω (3R3)
R11	7030003250	S.RESISTOR	ERJ3GEYJ 270 V (27 Ω)
C1	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C2	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C3	4030006710	S.CERAMIC	C1608 SL 1H 470J-T-A
C4	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C5	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
W2	7030003860	S.JUMPER	ERJ3GE JPW V
J1	6510010880	CONNECTOR	52022-1410
J2	6510012620	CONNECTOR	52022-2010
EP1	0910040583	PCB	B 3923D
EP2	0910037631	FPC	B 3730A

[PTT BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
S1	2260001680	S.SWITCH	SKQDPB
EP1	0910038111	FPC	B 3764A

[V-L BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	
R1	7210001910	VARIABLE	RV-199(RK0972210) 10KB/10KA [144]
R2	7210001910	VARIABLE	RV-199(RK0972210) 10KB/10KA [222]
S1	2260001400	ENCODER	SW-122 (RK097103H) [DIAL]
EP1	0910037003	FPC	B 3650C

[TONE SQL UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
IC1	1130007410	S.IC	FX365CLG
IC2	1130007410	S.IC	FX365CLG
IC3	1130003610	S.IC	TC4SU69F (TE85R)
Q1	1590000430	S.TRANSISTOR	DTC144EU T107
Q2	1510000580	S.TRANSISTOR	2SA1362-GR (TE85R)
Q3	1590000430	S.TRANSISTOR	DTC144EU T107
Q4	1510000580	S.TRANSISTOR	2SA1362-GR (TE85R)
Q5	1530002280	S.TRANSISTOR	2SC4081 T107 S
Q6	1530002280	S.TRANSISTOR	2SC4081 T107 S
Q7	1530002280	S.TRANSISTOR	2SC4081 T107 S
D1	1790000590	S.DIODE	MA110(TW)
D2	1790000590	S.DIODE	MA110(TW)
D3	1790000870	S.DIODE	MA1S121(TX)
D4	1160000060	S.DIODE	DAN202U T107
D5	1790000870	S.DIODE	MA1S121(TX)

[TONE SQL UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	
X1	6060000480	CERAMIC	CSB1000J221T
R1	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R2	7030003700	S.RESISTOR	ERJ3GEYJ 154 V (150 kΩ)
R3	7030003840	S.RESISTOR	ERJ3GEYJ 225 V (2.2 MΩ)
R4	7030003740	S.RESISTOR	ERJ3GEYJ 334 V (330 kΩ)
R5	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R6	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R7	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R9	7030003570	S.RESISTOR	ERJ3GEYJ 123 V (12 kΩ)
R10	7030003700	S.RESISTOR	ERJ3GEYJ 154 V (150 kΩ)
R11	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R12	7030003560	S.RESISTOR	ERJ3GEYJ 103 V (10 kΩ)
R13	7310003550	S.TRIMMER	MVR32HXBR N473
R14	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R15	7030003740	S.RESISTOR	ERJ3GEYJ 334 V (330 kΩ)
R16	7030003600	S.RESISTOR	ERJ3GEYJ 223 V (22 kΩ)
R17	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R18	7030003780	S.RESISTOR	ERJ3GEYJ 684 V (680 kΩ)
R19	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R20	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R21	7410000900	S.ARRAY	EXB-V4V 105JV (1 MΩ)
R23	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R24	7030003520	S.RESISTOR	ERJ3GEYJ 472 V (4.7 kΩ)
R25	7030003480	S.RESISTOR	ERJ3GEYJ 222 V (2.2 kΩ)
R26	7030003780	S.RESISTOR	ERJ3GEYJ 684 V (680 kΩ)
R27	7030003800	S.RESISTOR	ERJ3GEYJ 105 V (1 MΩ)
R28	7410000900	S.ARRAY	EXB-V4V 105JV (1 MΩ)
R30	7030003680	S.RESISTOR	ERJ3GEYJ 104 V (100 kΩ)
R31	7030003640	S.RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R32	7030003710	S.RESISTOR	ERJ3GEYJ 184 V (180 kΩ)
R33	7030003710	S.RESISTOR	ERJ3GEYJ 184 V (180 kΩ)
R34	7030003580	S.RESISTOR	ERJ3GEYJ 153 V (15 kΩ)
R35	7010003640	RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
R36	7010003640	RESISTOR	ERJ3GEYJ 473 V (47 kΩ)
C1	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C2	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C3	4030006900	S.CERAMIC	C1608 JB 1E 103K-T-A
C4	4550000480	S.TANTALUM	TESVA 1C 105M1-8L
C5	4550000530	S.TANTALUM	TESVA 1V 104M1-8L
C6	4030006540	S.CERAMIC	C1608 SL 1H 030C-T-A
C7	4550002950	S.TANTALUM	TESVA 0J 335M1-8L
C8	4030007170	S.CERAMIC	C1608 CH 1H 221J-T-A
C9	4030007170	S.CERAMIC	C1608 CH 1H 221J-T-A
C10	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C11	4030008850	S.CERAMIC	C1608 JB 1H 471K-T-A
C12	4030008900	S.CERAMIC	C1608 JB 1E 103K-T-A
C13	4550000460	S.TANTALUM	TESVA 1C 105M1-8L
C15	4030006540	S.CERAMIC	C1608 SL 1H 030C-T-A
C16	4550000530	S.TANTALUM	TESVA 1V 104M1-8L
C17	4550002950	S.TANTALUM	TESVA 0J 335M1-8L
C18	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C19	4030008920	S.CERAMIC	C1608 JB 1C 473K-T-A
C20	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
W1	7030003860	S.JUMPER	ERJ3GE JPW V
EP1	0910040990	PCB	B 4128

S.=Surface mount

SECTION 3 MECHANICAL PARTS AND DISASSEMBLY

3-1 CHASSIS PARTS

LABEL NO.	ORDER NO.	DESCRIPTION	QTY.
①	8210009700	Front panel (I)	1
②	8810005360	Screw PH No. 0-1 M2 x 3 ZK	3
③	8810006980	Screw FH No. 0-1 M2 x 3 NI	1
④	8930026260	1257 LED lens	1
⑤	8930026710	1266 PTT holder	1
⑥	8810001720	Screw PH B0 No. 0-3 1.4 x 4	9
⑦	2510000531	Speaker T028S14I0811	1
⑧	8930027930	Isolating sheet (CP)	1
⑨	8930026720	1266 Speaker holder	1
⑩	8510008041	1266 SP isolating sheet-1	1
⑪	8930026372	1257 Microphone contact-1	2
⑫	8930029130	1257 Contact base-2	1
⑬	8930027740	1266 Contact spring	2
⑭	8930026300	1266 Display cover	1
⑮	8930026700	1266 LCD holder	1
⑯	5030000890	LCD LD-BU5545J	1
⑰	8930027610	LCD contact SRCN-1266	2
⑱	8930028760	1266 Reflector	1
⑲	8930026350	1257 A-angle	1
⑳	8810004980	Screw PH No. 0-3 B0 1.4 x 4.5 NI	4
㉑	8930027770	1266 Key mask	1
㉒	8930026690	1266 Key sheet (buttons)	1
㉓	7210001910	[144 VR/SQL] control RV-199	1
㉔	7210001910	[220 VR/SQL] control RV-199	1
㉕	2260001400	[DIAL] selector SW-122	1

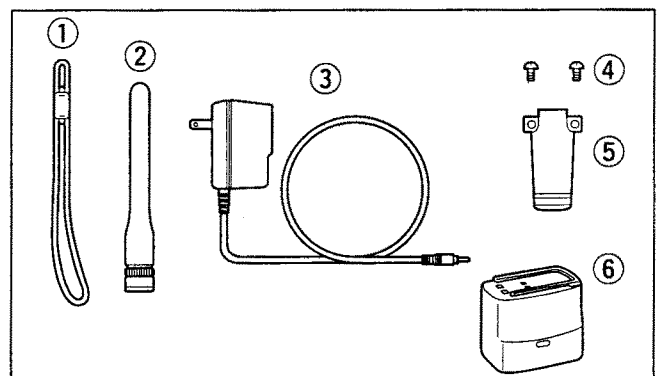
LABEL NO.	ORDER NO.	DESCRIPTION	QTY.
⑳	8930026320	1257 Top plate	1
㉑	8930026331	1257 Top seal-1	1
㉒	8210009480	1257 Top panel (E)	1
㉓	8830000710	VR nut (G)	3
㉔	8610008750	Knob N-200 (A)	1
㉕	8610008730	Knob N-198 (A)-1	2
㉖	8610008740	Knob N-199 (A)	2
㉗	8510008041	1266 SP shield-1	1
㉘	8810008520	1266 Module plate	1
㉙	8810007720	Screw PH No. 0-3 M2 x 14 NI	3
㉚	8810007800	Screw PH No. 0-3 M2.6 x 14.5 NI	2
㉛	8810007830	Screw PH No. 0-3 M2 x 14.5	1
㉜	8010013901	1257 RF chassis-1	1
㉝	8810006610	Screw PH No. 0-1 M2 x 2.5 NI	2
㉞	8930029120	1257 Release button (A)	1
㉟	8930029160	1257 PTT rubber (A)	1
㊱	8930026340	1257 Connector seal	1
㊲	8210009170	1257 Rear panel (A)	1
㊳	6510015550	BNC-R117 (incl. Nut)	1
㊴	8930029180	1257 Jack cap (A)-1	1
㊵	8930027680	Sponge (DB)	1
㊶	8930026280	1257 Bottom plate	1
㊷	8810007100	Screw FH No. 0-1 M2 x 2.5 NI	4
㊸	8930027340	1257 Bottom angle	1

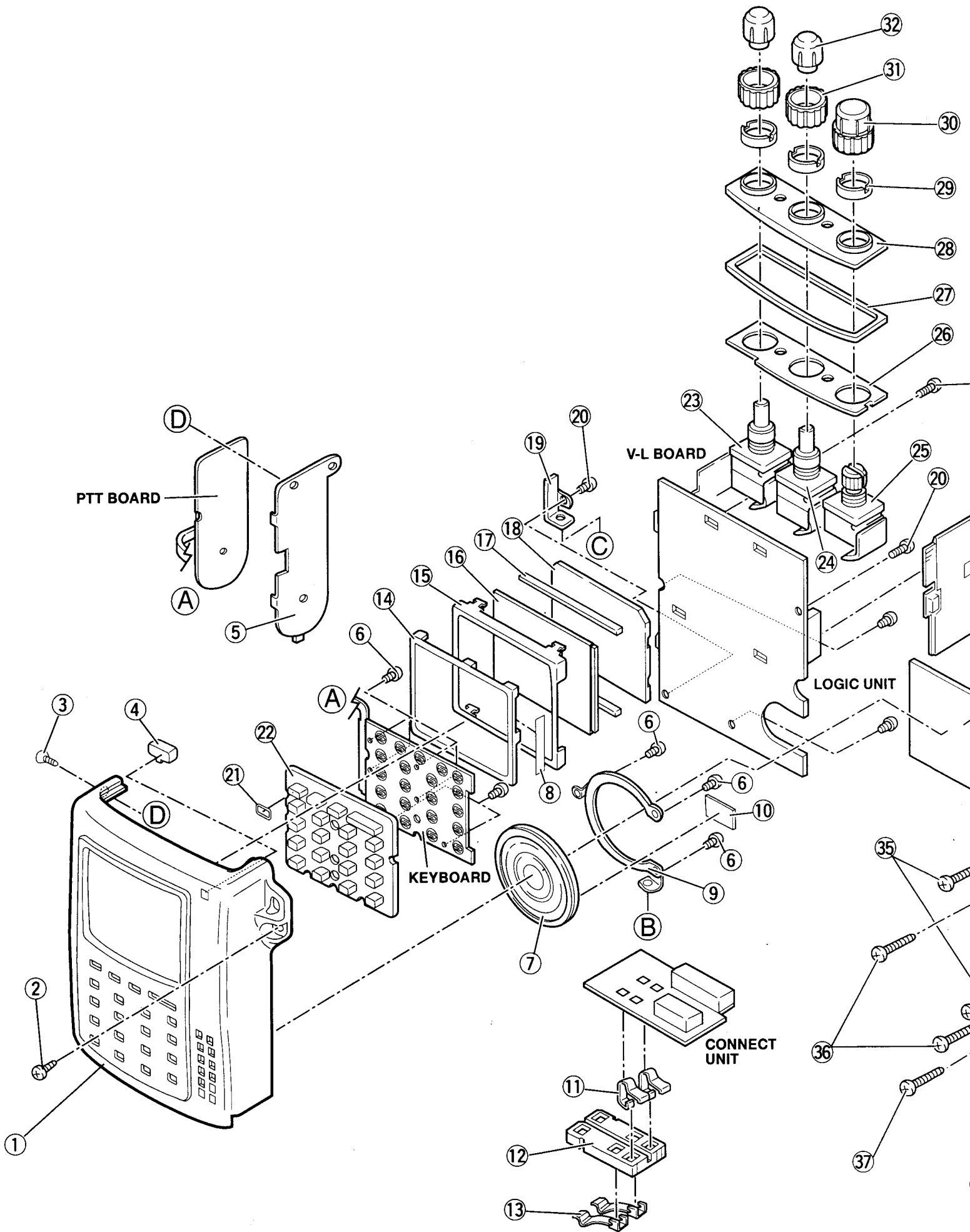
Screw abbreviations

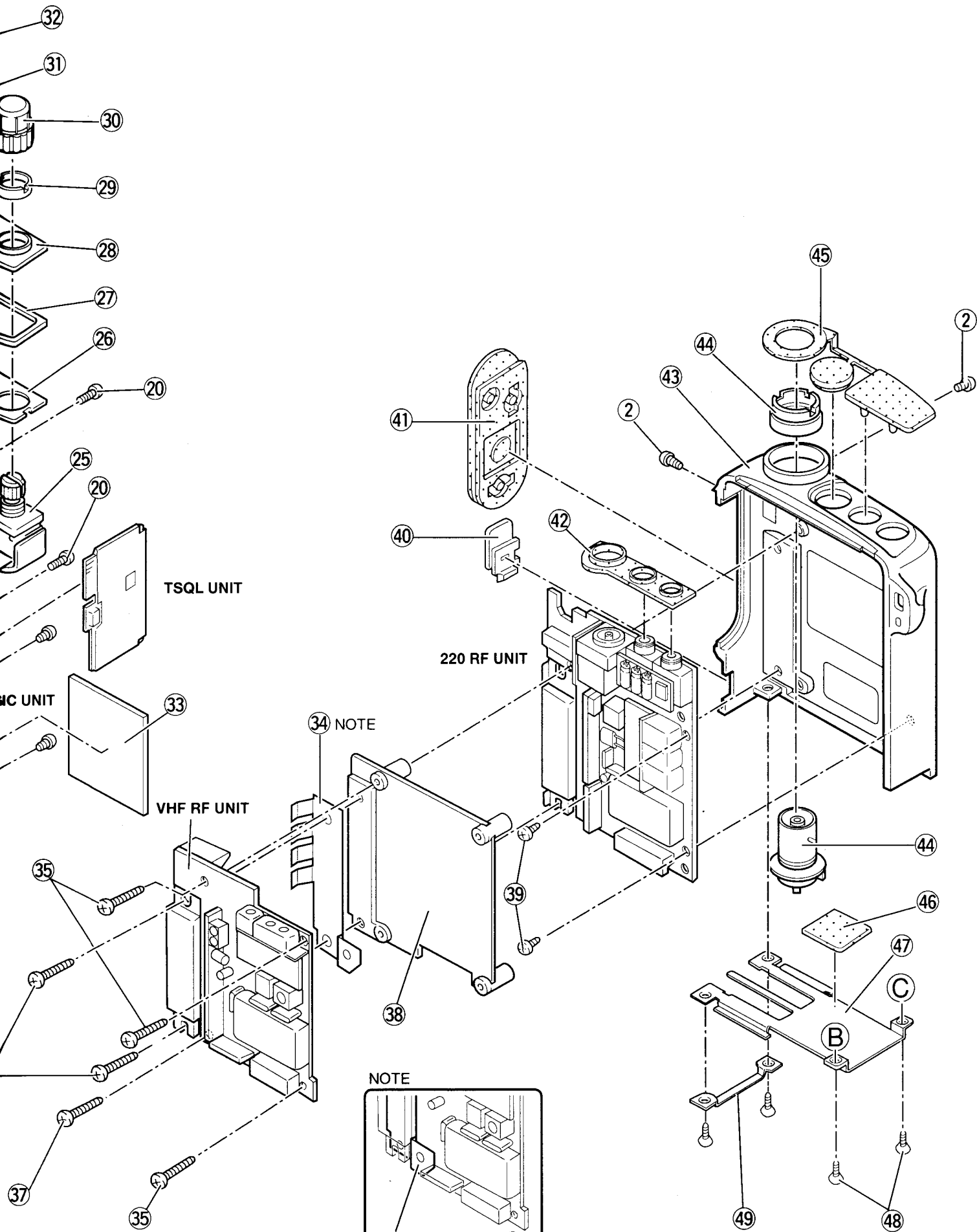
PH: Pan head FH: Flat head
NI: Nickel ZK: Black

3-2 ACCESSORIES

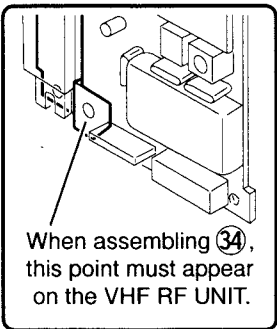
LABEL NO.	ORDER NO.	DESCRIPTION	QTY.
①	8010013920	Handstrap HK-006	1
②	Optional product	FA-B2125A Flexible antenna	1
③	Optional product	Wall charger BC-77A/E/D/V	1
④	8810005730	Screw BuH M3 x 3 ZK BS	2
⑤	8010008620	752 Belt clip	1
⑥	Optional product	Battery pack BP-157A	1







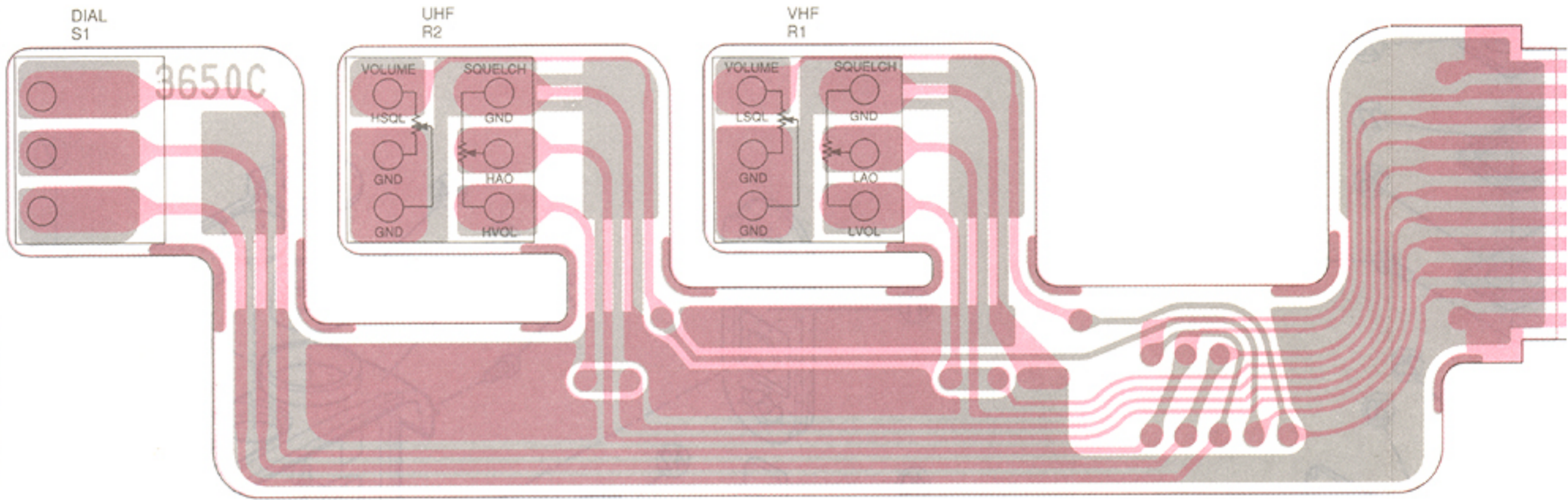
NOTE



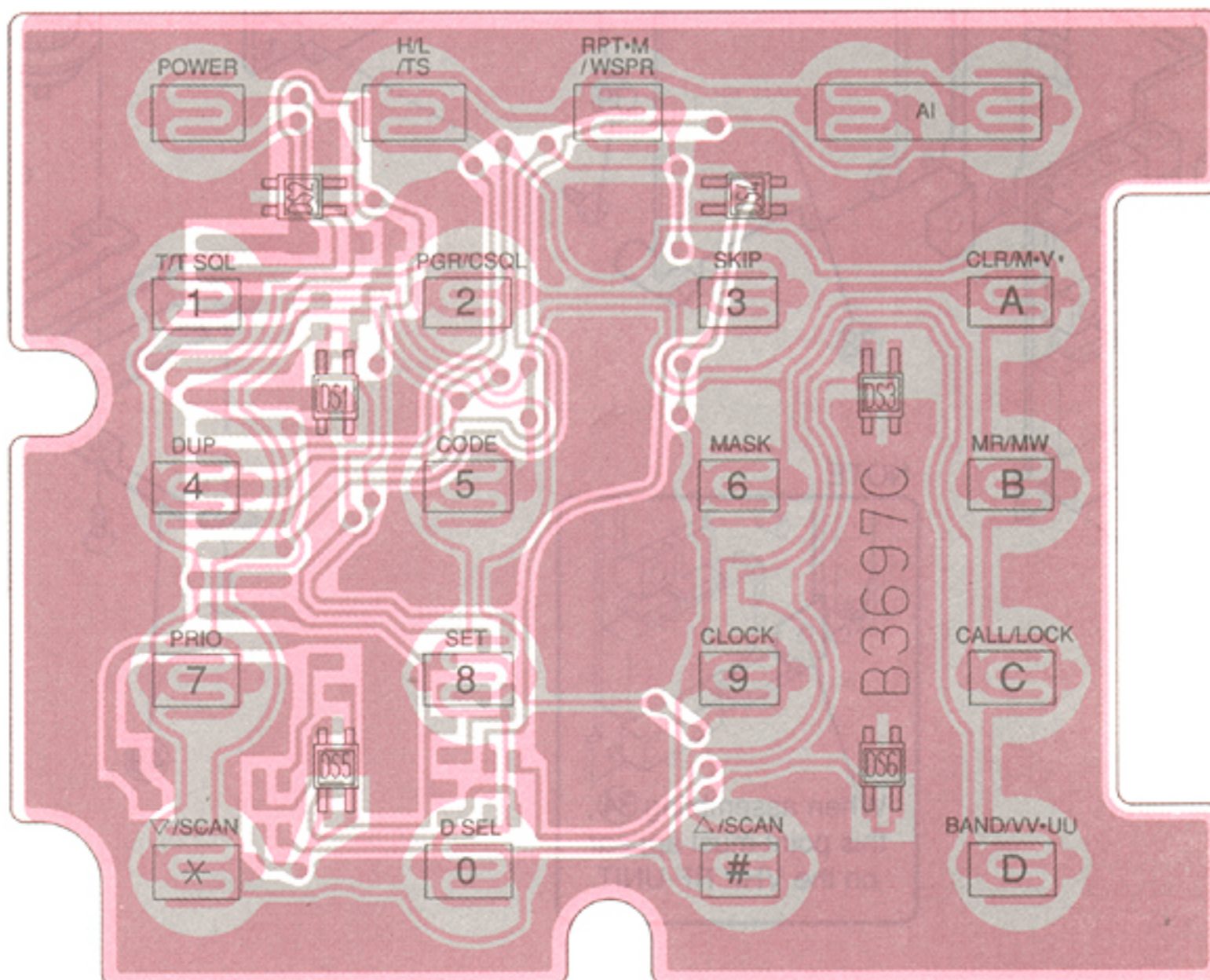
SECTION 4 BOARD LAYOUTS

4-1 V-L BOARD, CONNECT UNIT AND KEYBOARD UNIT

• V-L BOARD (TOP VIEW)



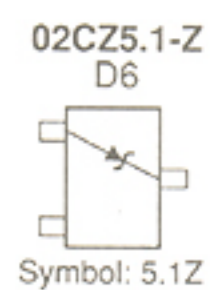
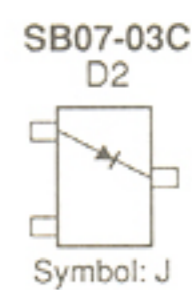
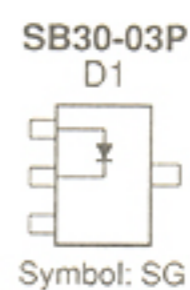
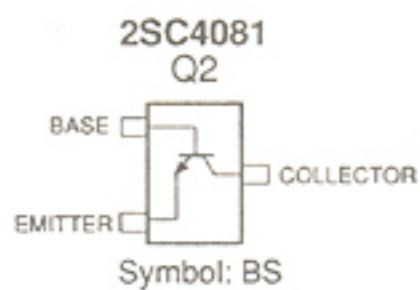
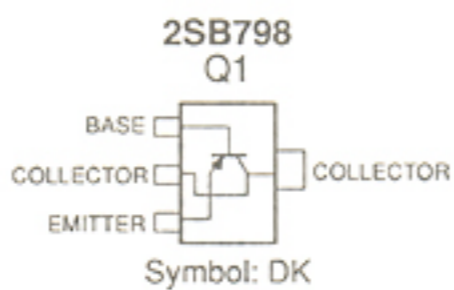
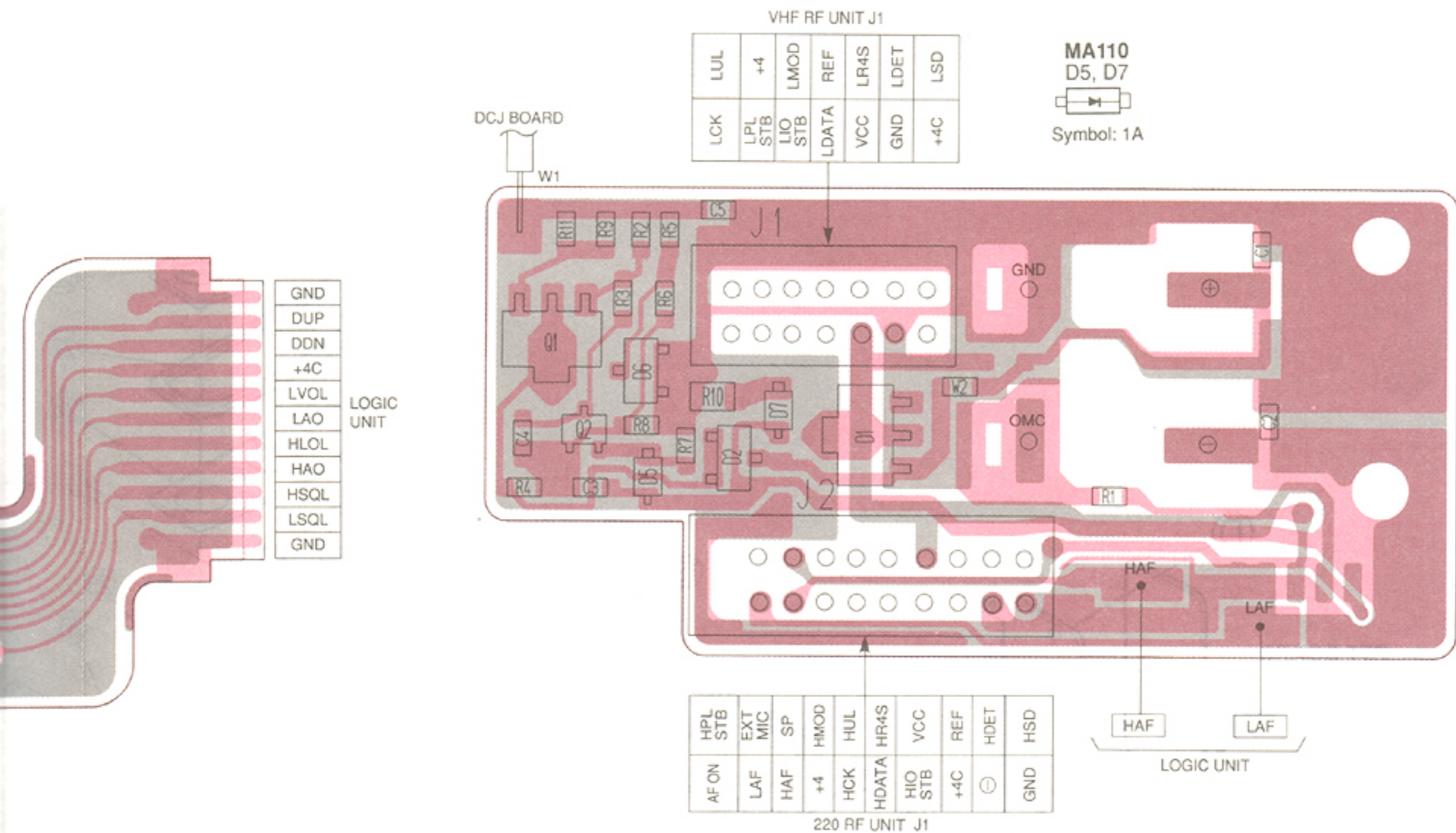
• KEYBOARD UNIT (TOP VIEW)



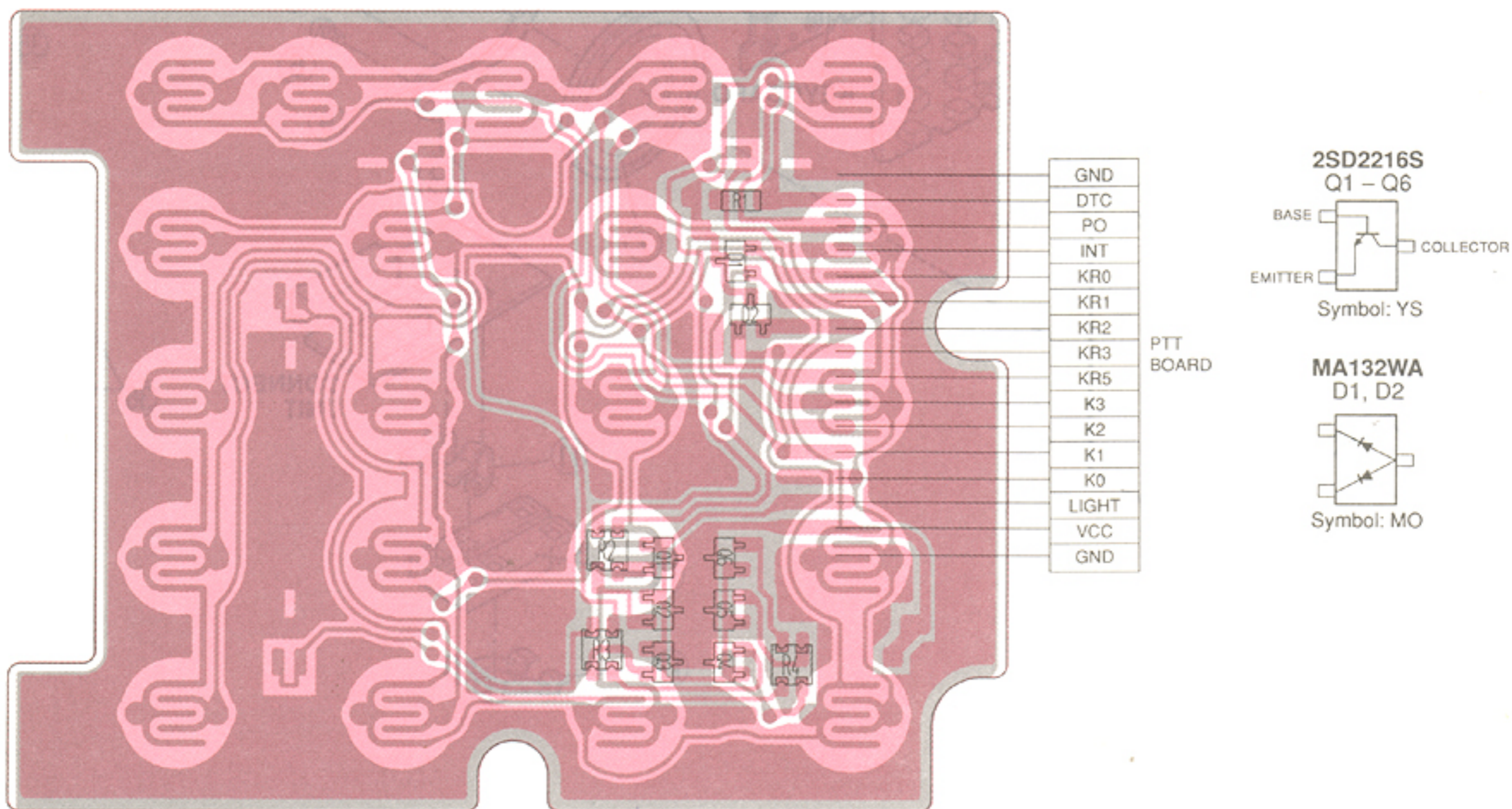
• KEYBO



• CONNECT UNIT (TOP VIEW)

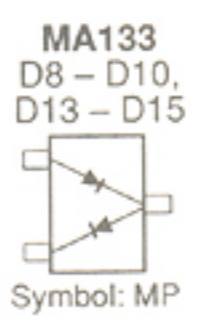
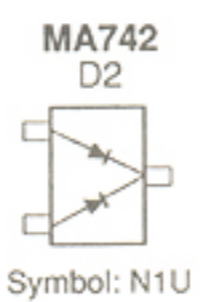
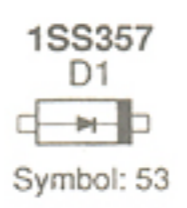
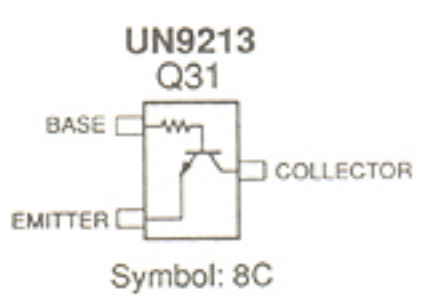
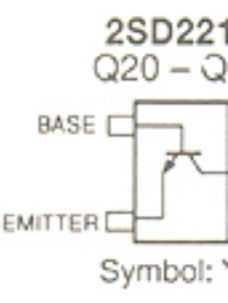
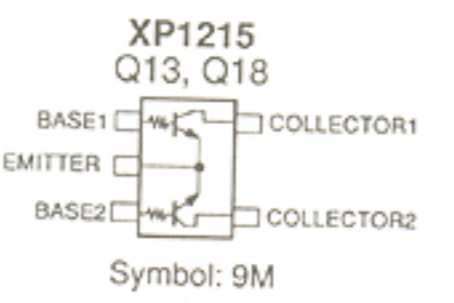
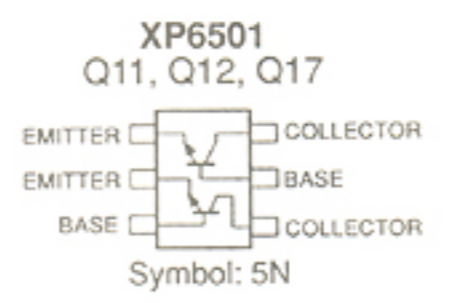
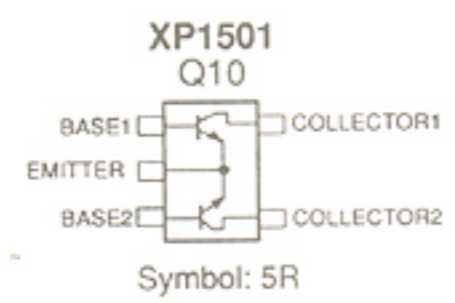
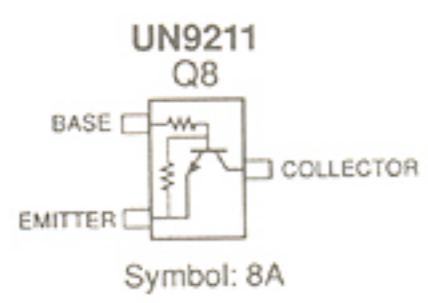
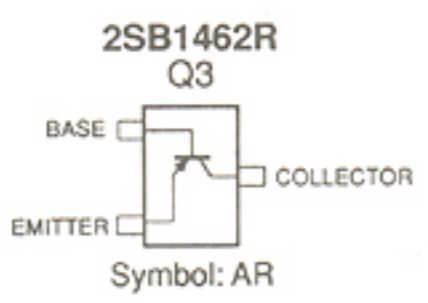
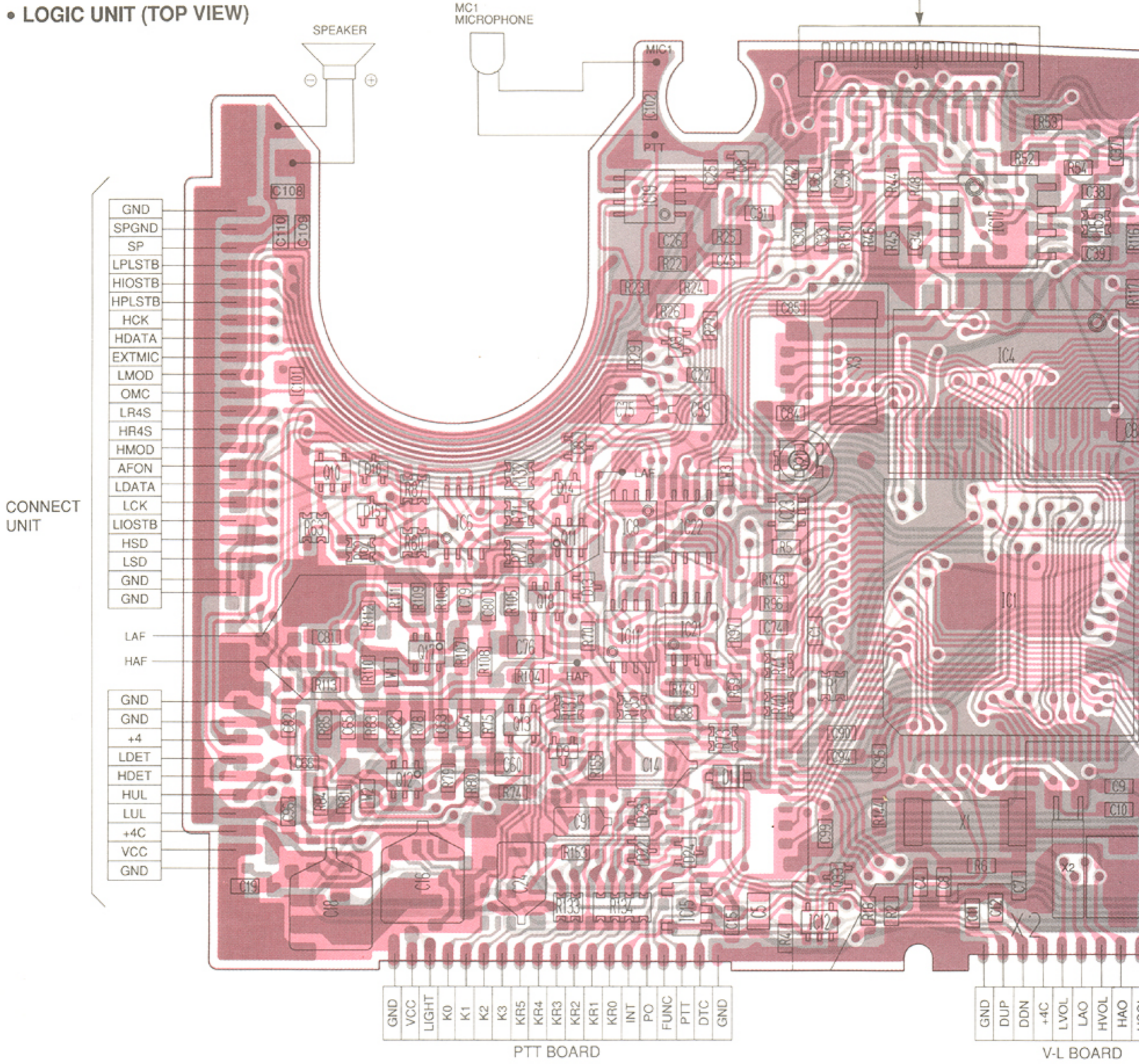


• KEYBOARD UNIT (BOTTOM VIEW)



4-2 LOGIC UNIT, TSQL UNIT AND DCJ BOARD

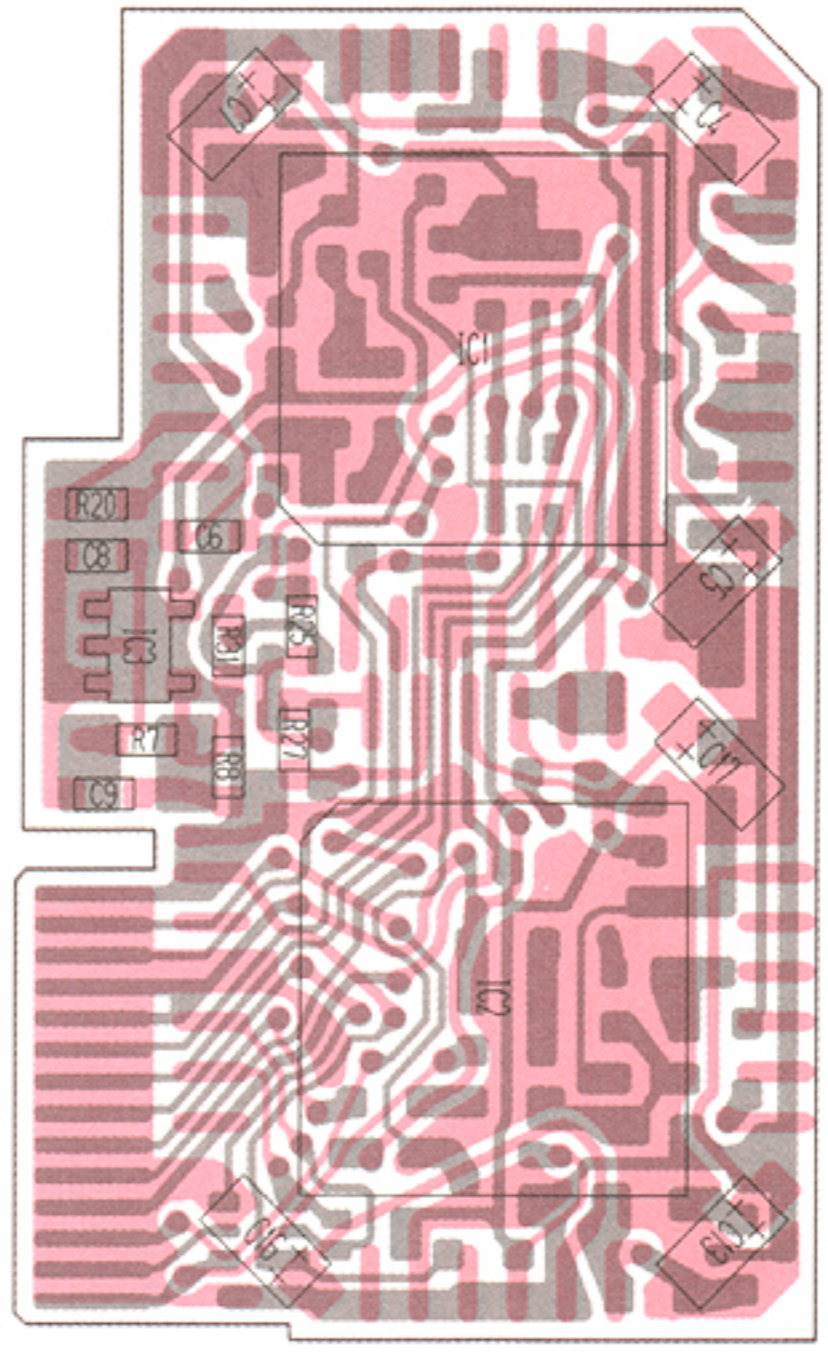
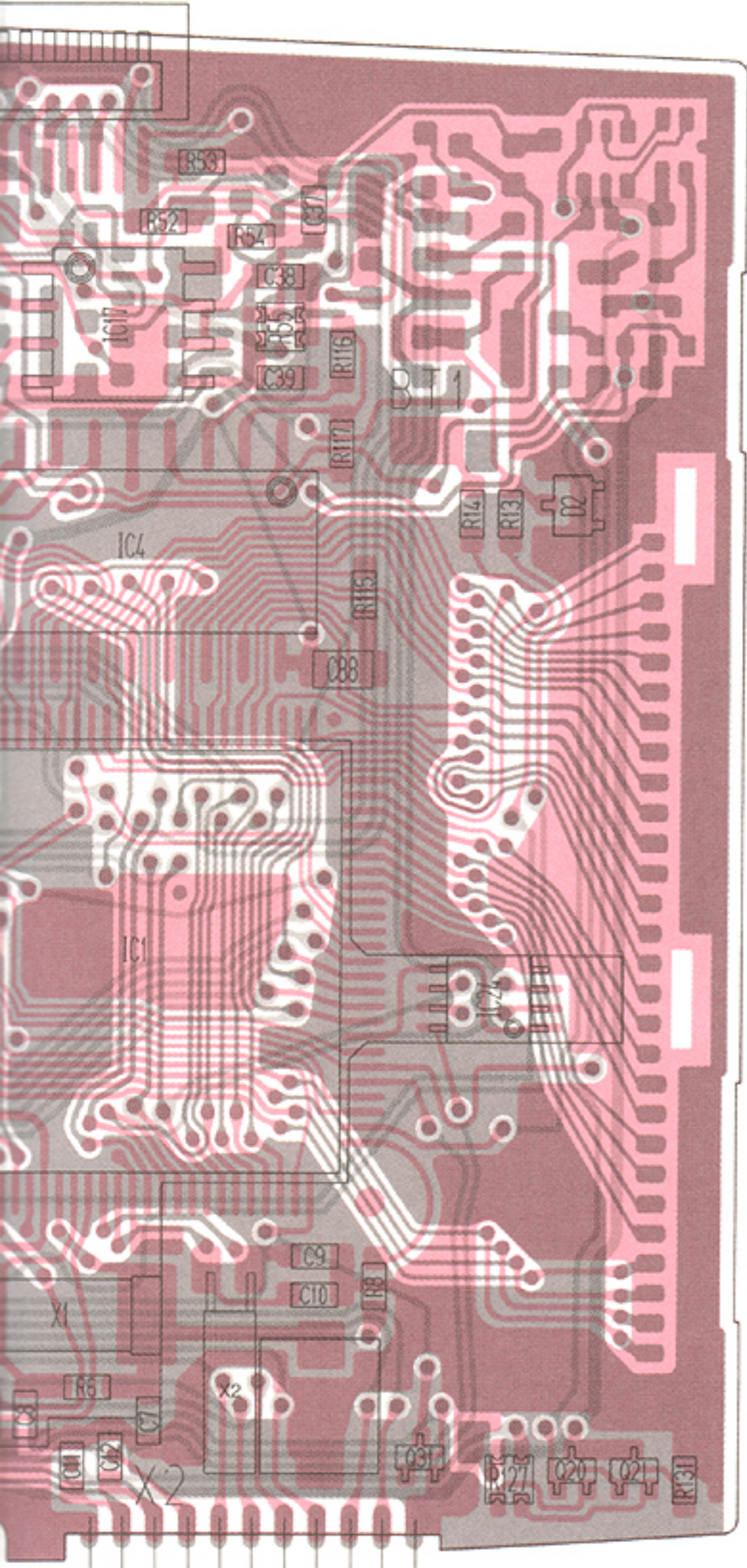
• LOGIC UNIT (TOP VIEW)



LCK
LDEF
HDEF
HTSOLSTB
LDATA
LTSOLSTB

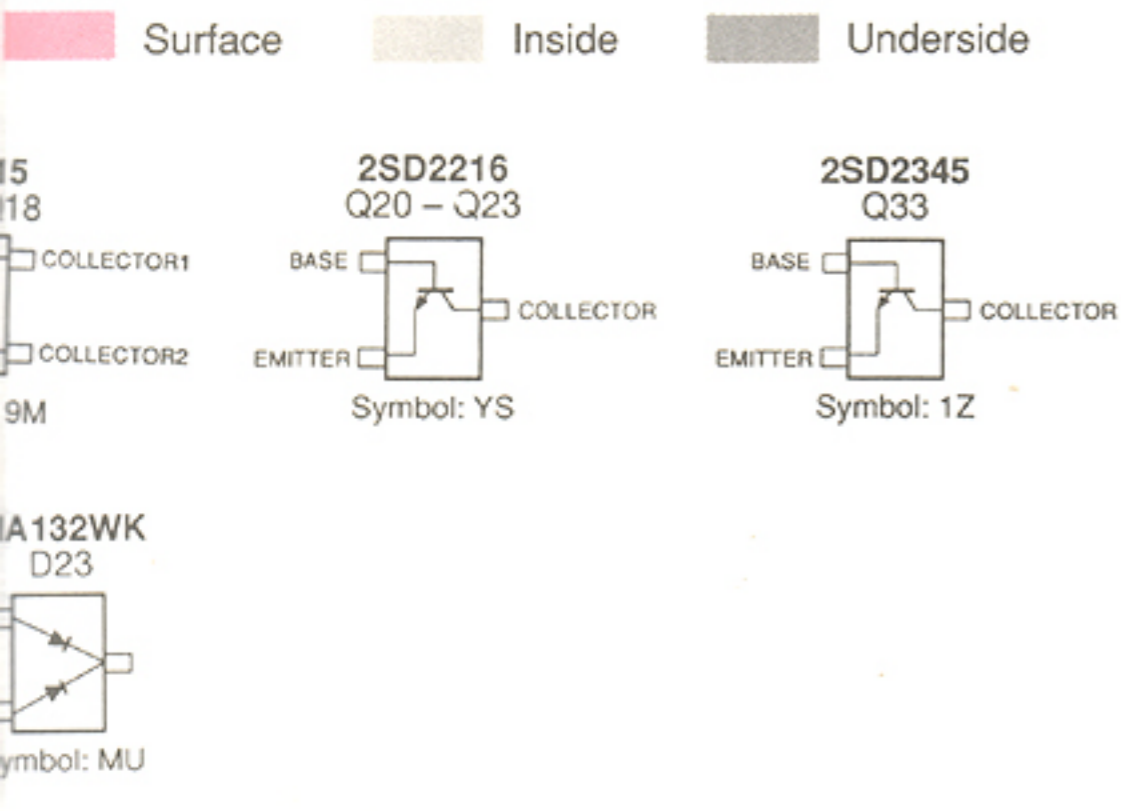
The combination of this page and the next page shows the unit layout in the same configuration as the actual P.C. Board.

• TSQL UNIT (TOP VIEW)

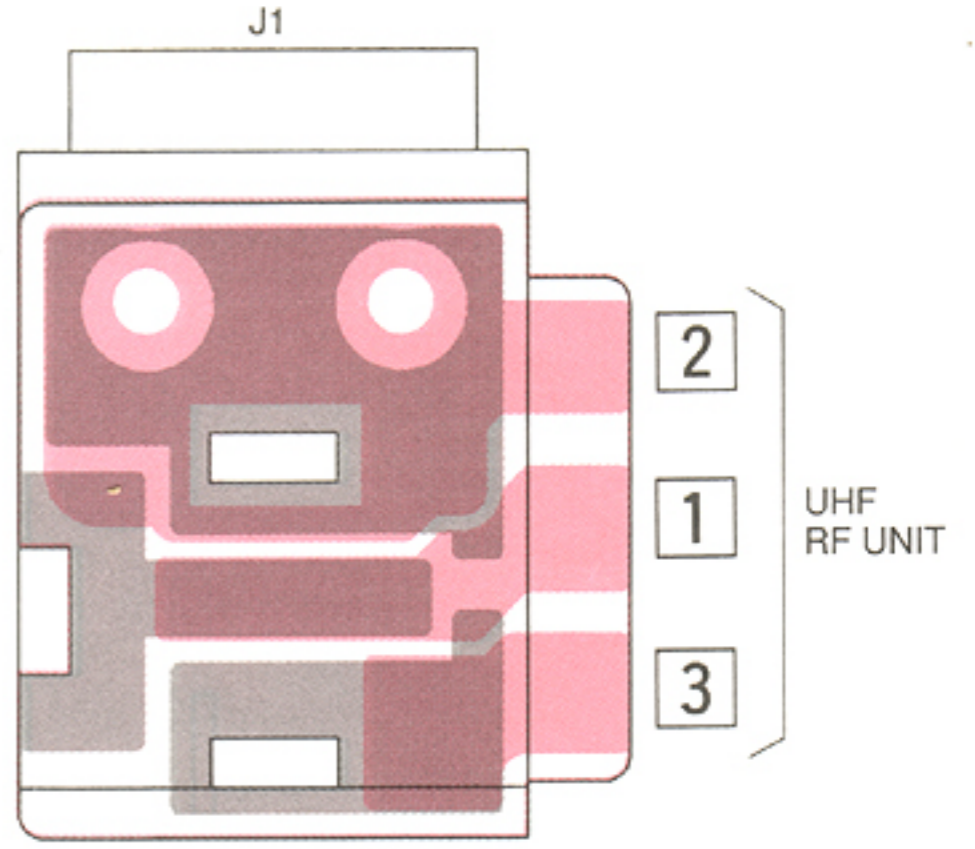


GND
DUP
DDN
+4C
LVOL
LAO
HVOL
HAO
HSOL
LSOL
GND

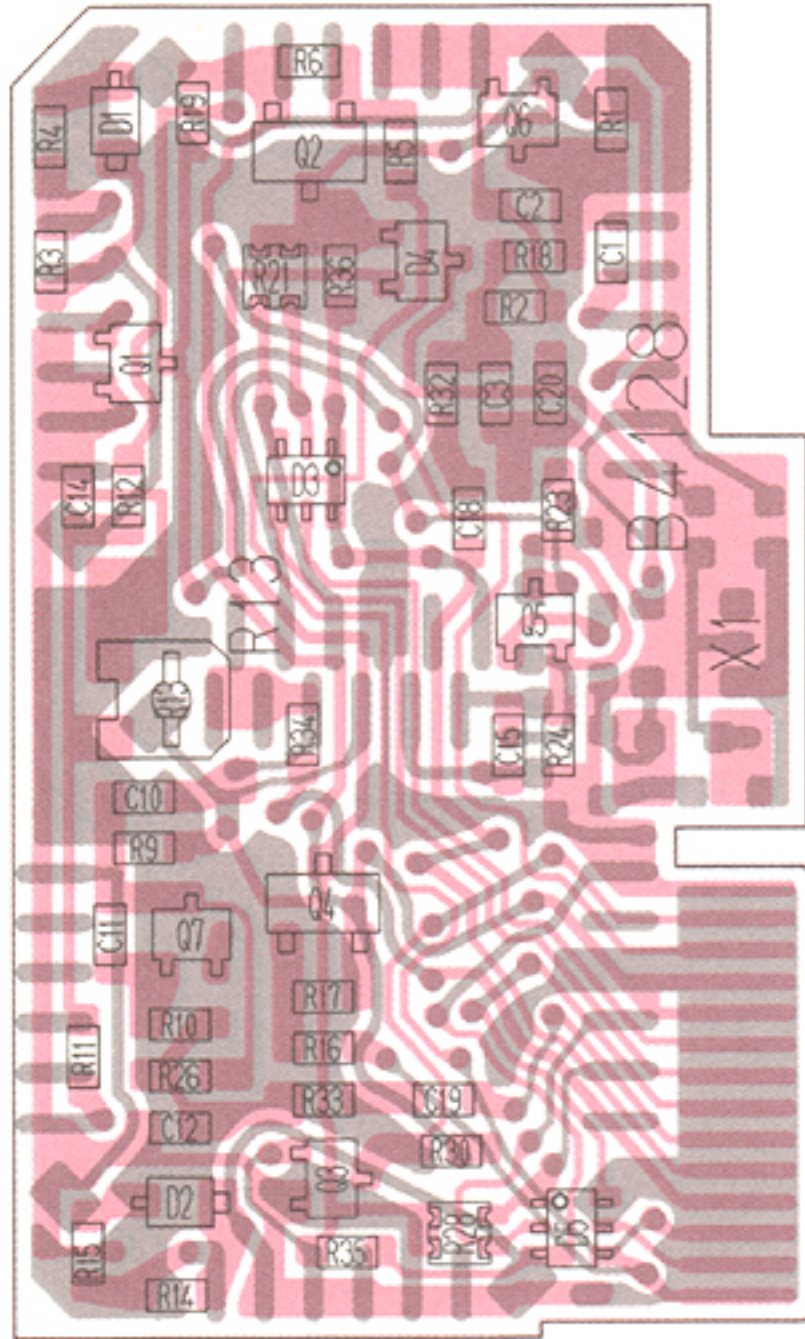
V-L BOARD



• DCJ BOARD (TOP VIEW)



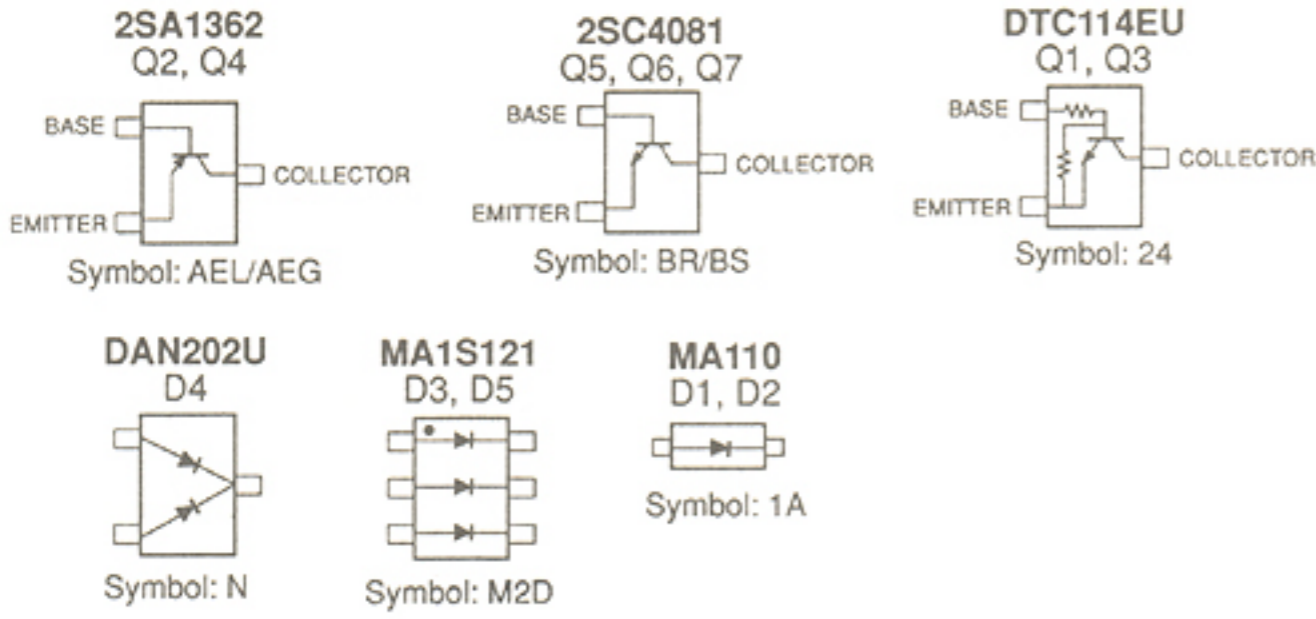
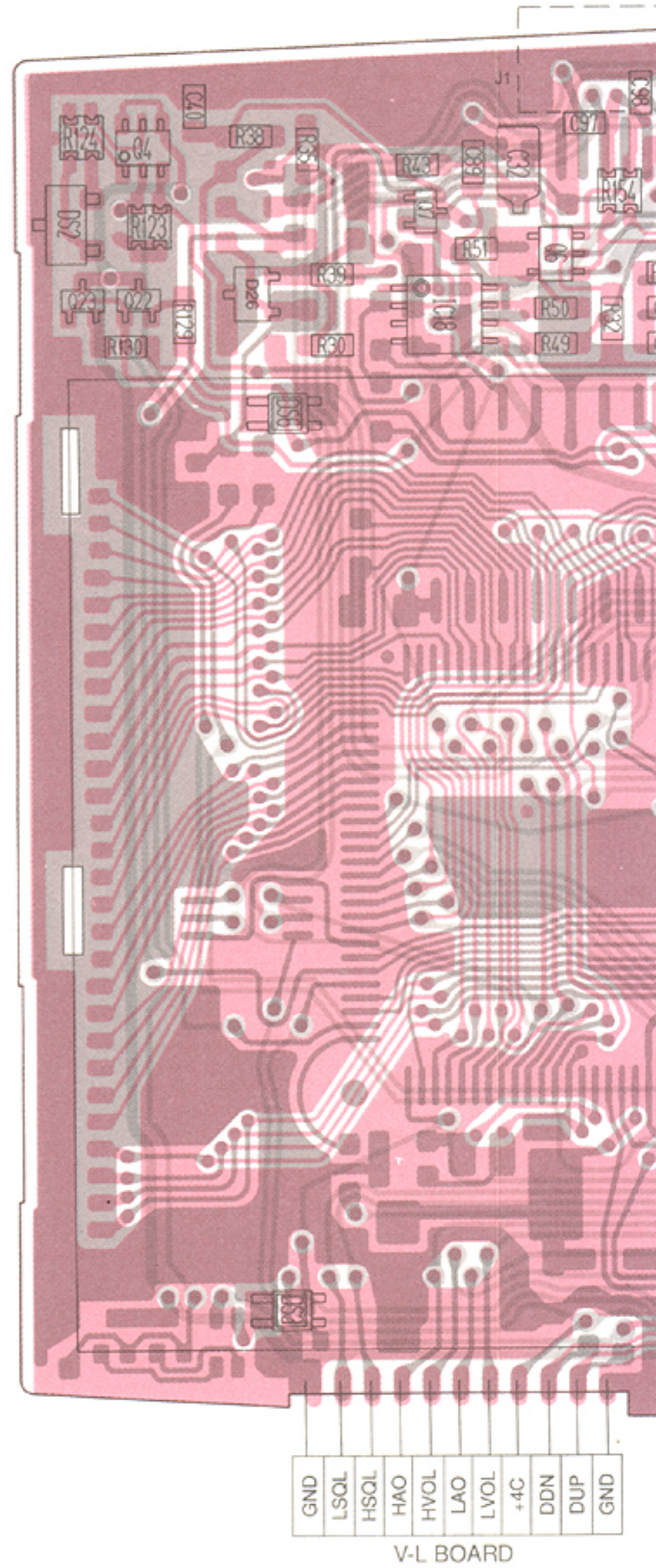
• TSQL UNIT (BOTTOM VIEW)



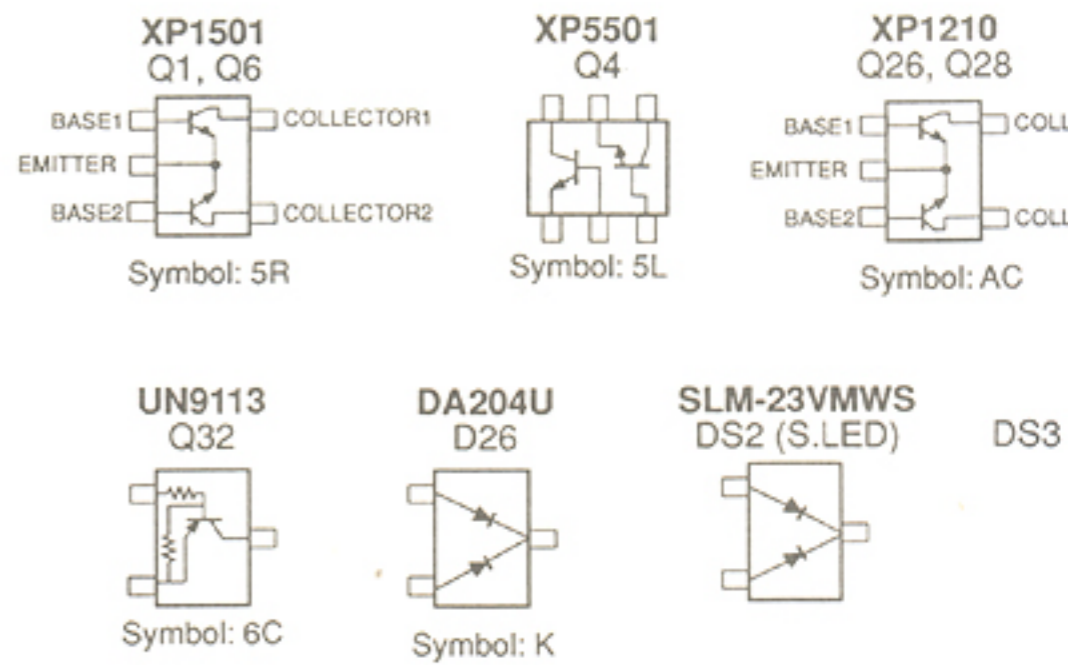
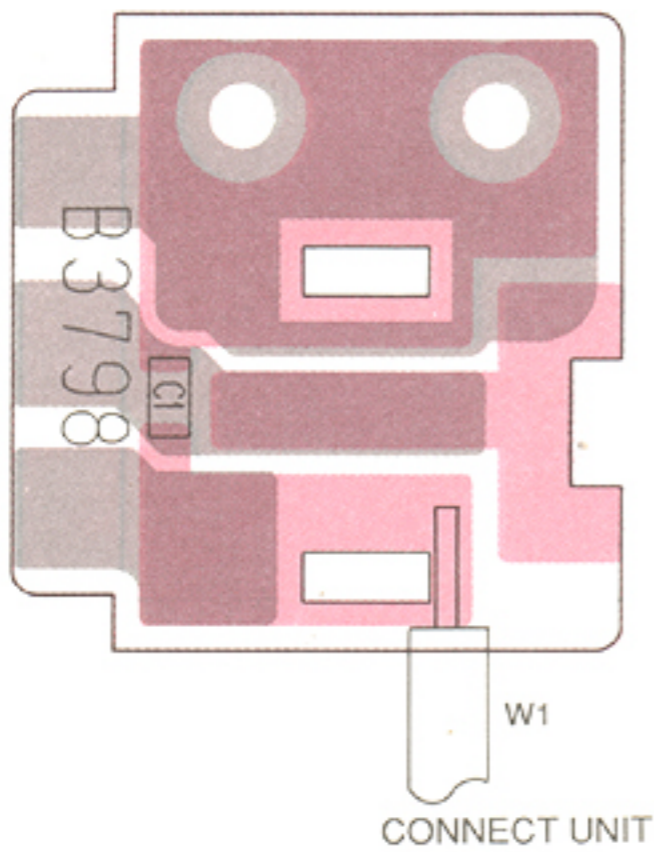
GND
LTSQL
HTSQL
OPTSQL
+4C
HCK
HDATA
LCK
LDEF
HOEF
TCNE
HTSQLSTB
LDATA
LTSQLSTB

LOGIC UNIT

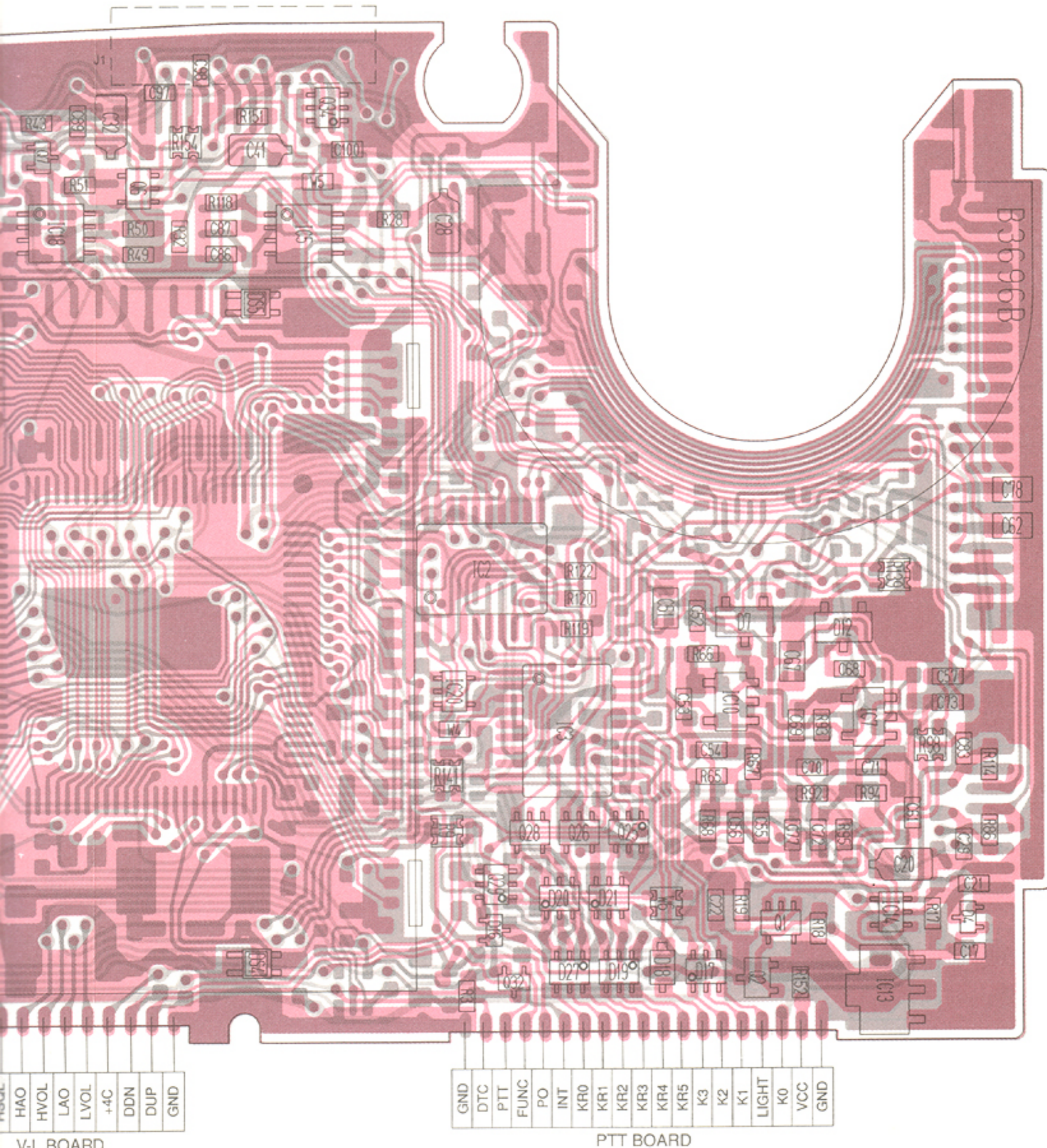
• LOGIC UNIT (BOTTOM VIEW)



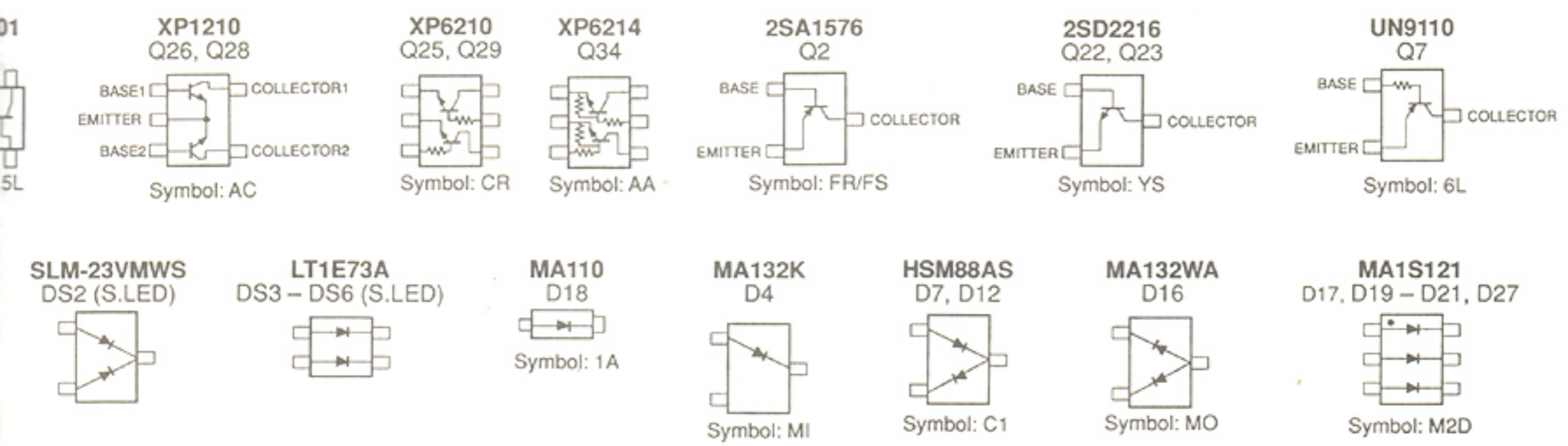
• DCJ BOARD (BOTTOM VIEW)



VIEW)

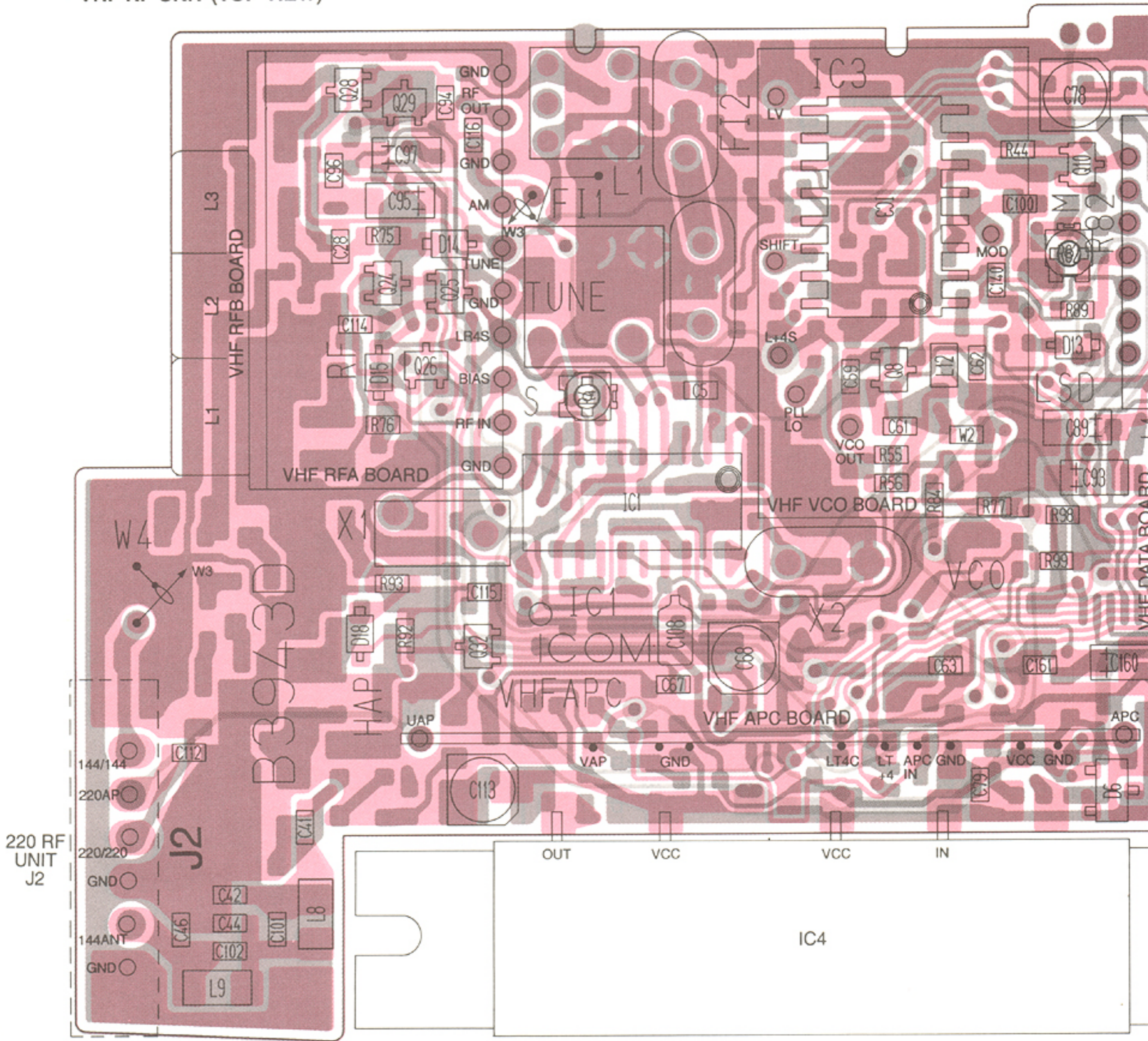


Surface Inside Underside

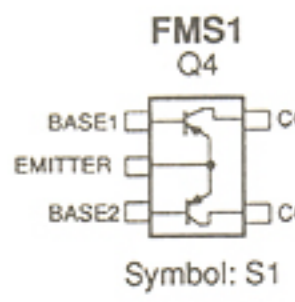
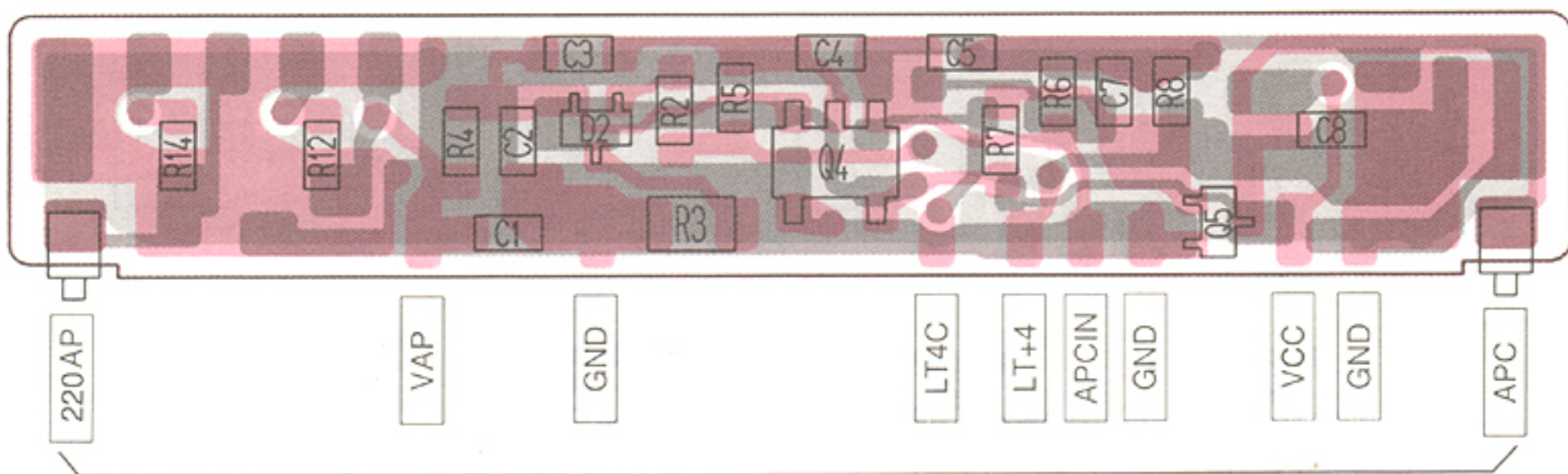


4-3 VHF UNIT

• VHF RF UNIT (TOP VIEW)

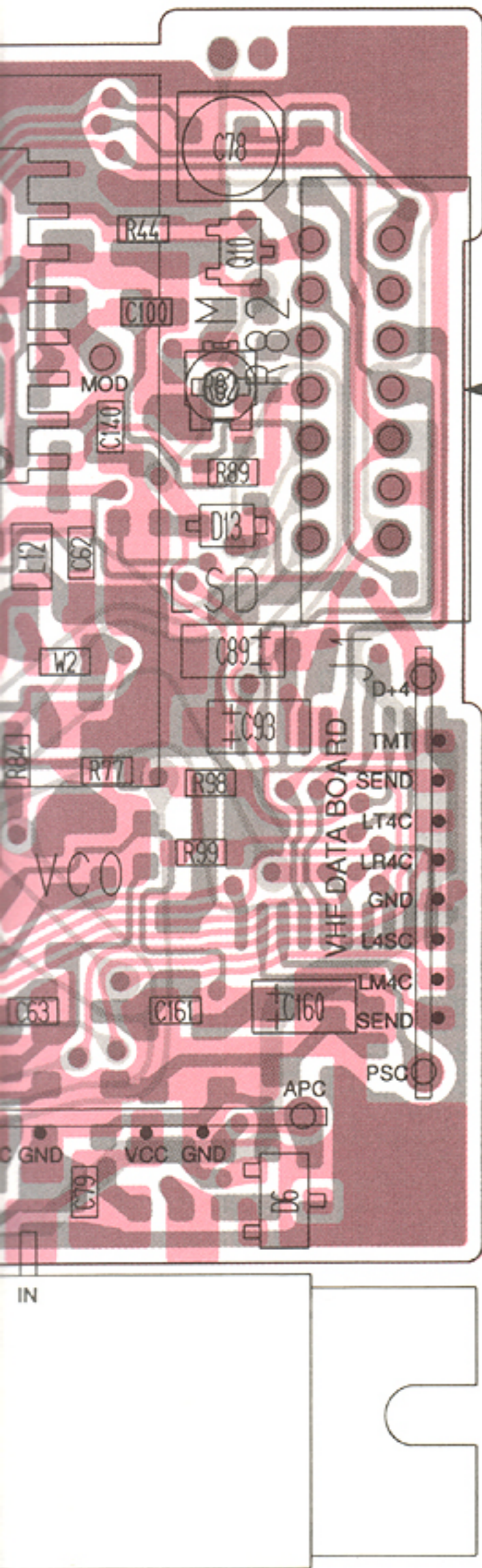


• VHF APC BOARD (TOP VIEW)



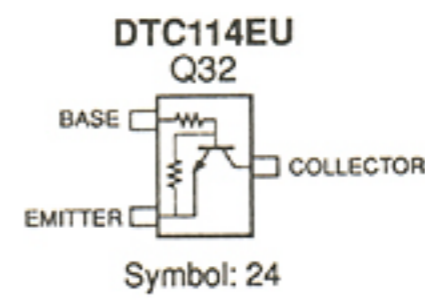
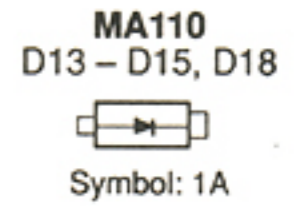
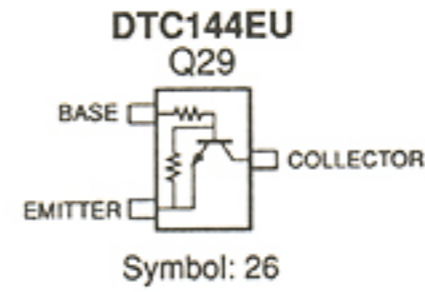
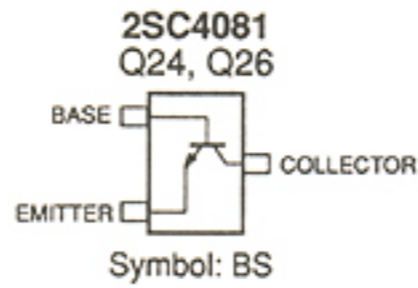
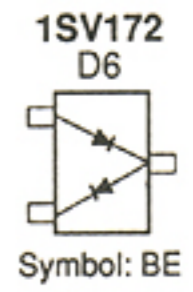
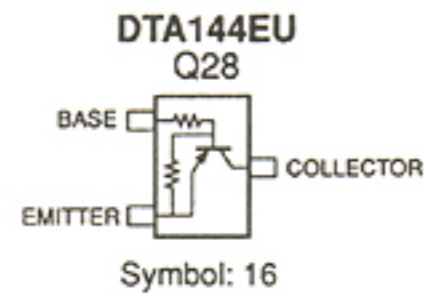
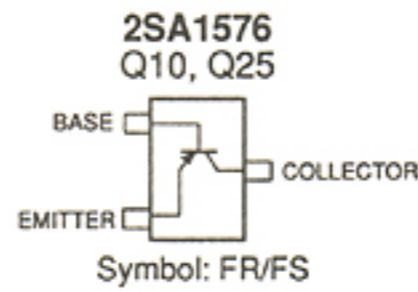
VHF RF UNIT

The combination of this page and the next page shows the unit layout in the same configuration as the actual P.C. Board.

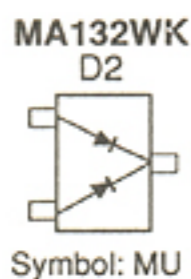
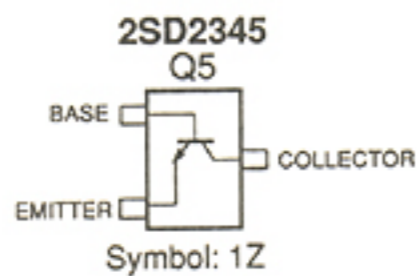
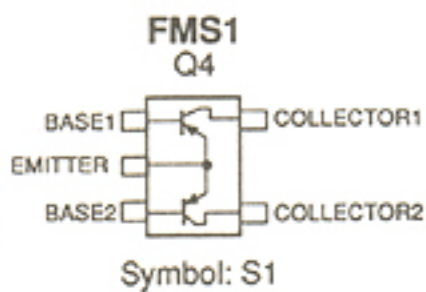


CONNECT UNIT J1

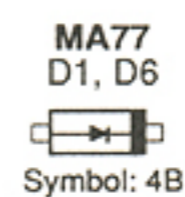
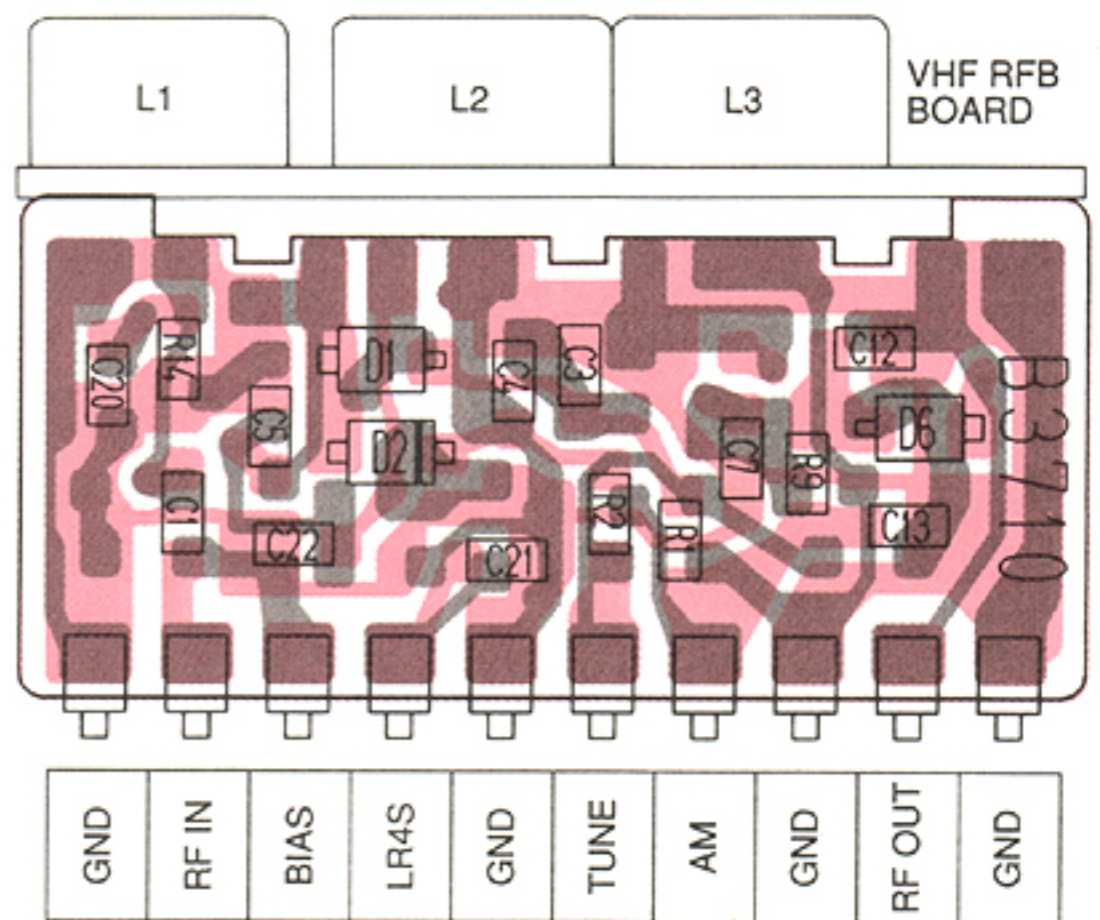
LUL	LCK
+4	LPL STB
LMOD	LIO STB
REF	LDATA
LR4S	VCC
LDET	GND
LSD	+4C



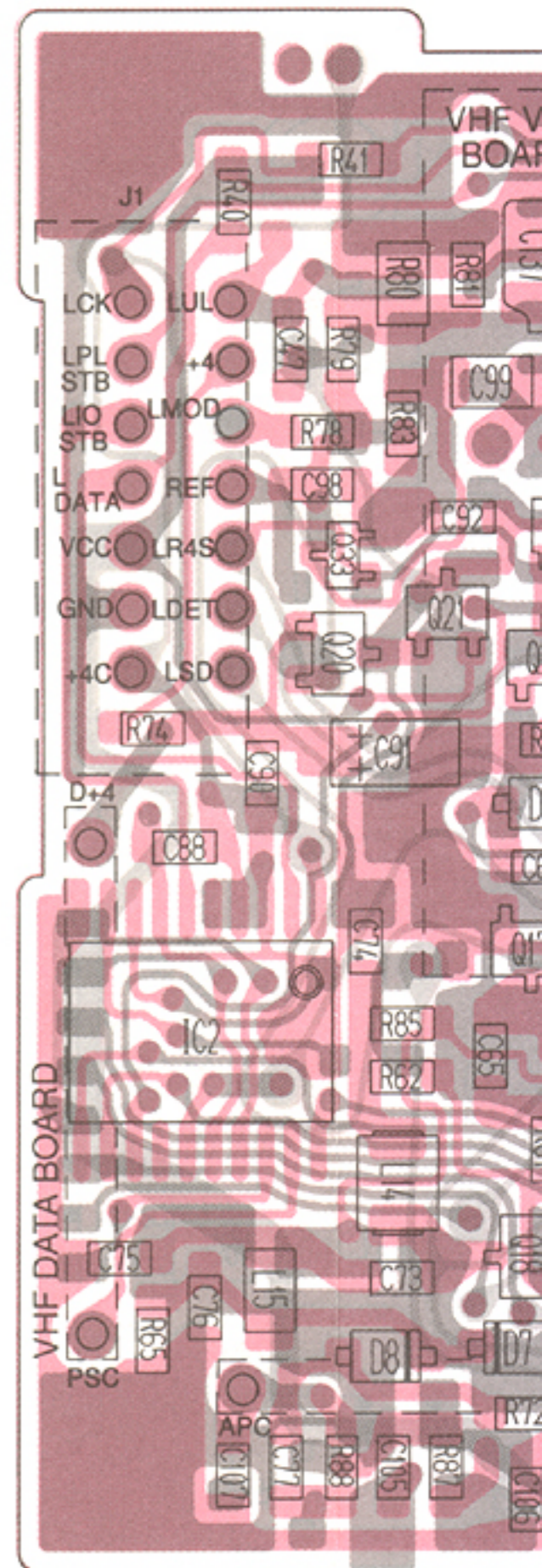
Inside Underside



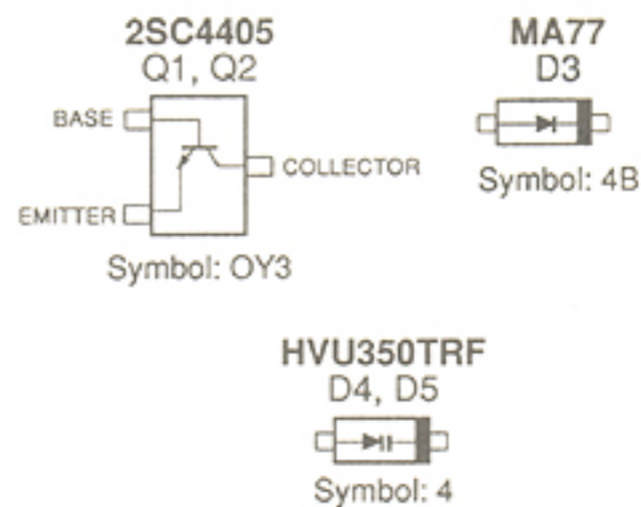
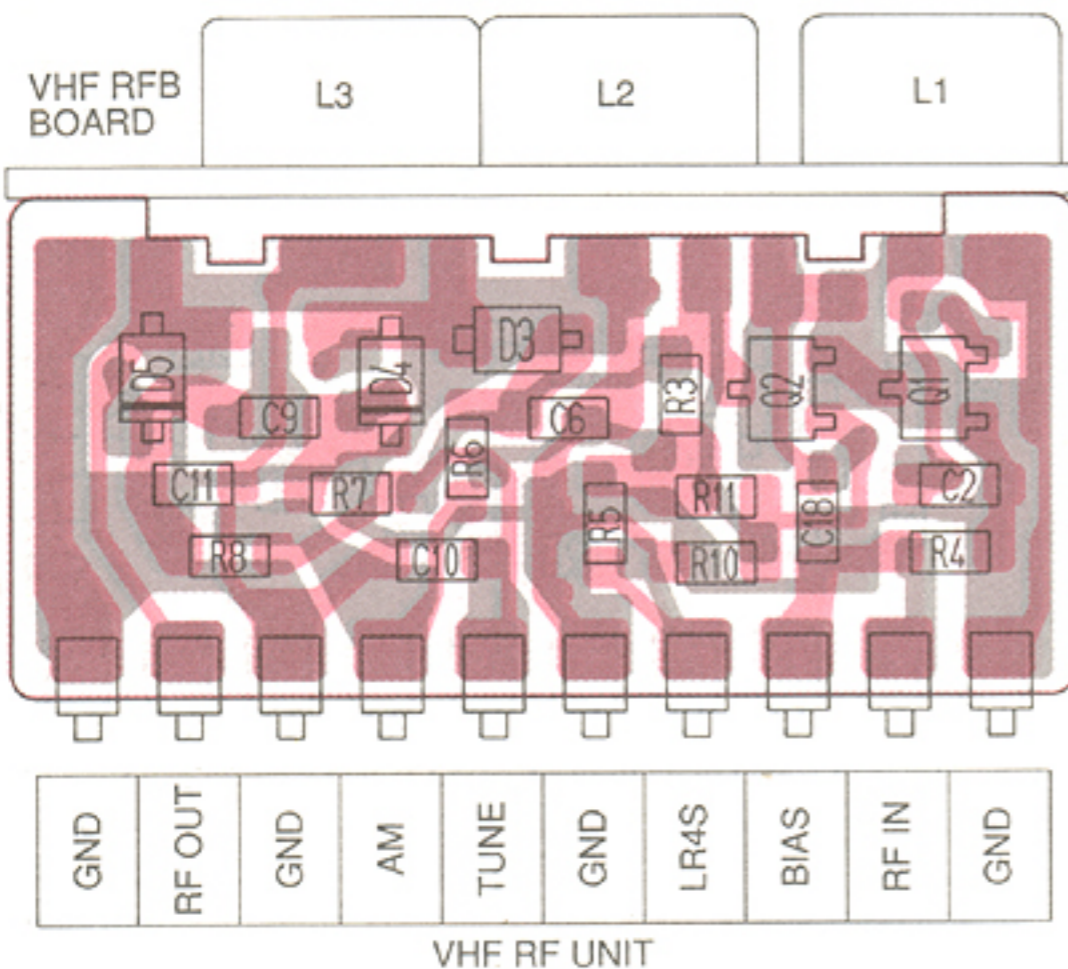
• VHF RFA BOARD (TOP VIEW)



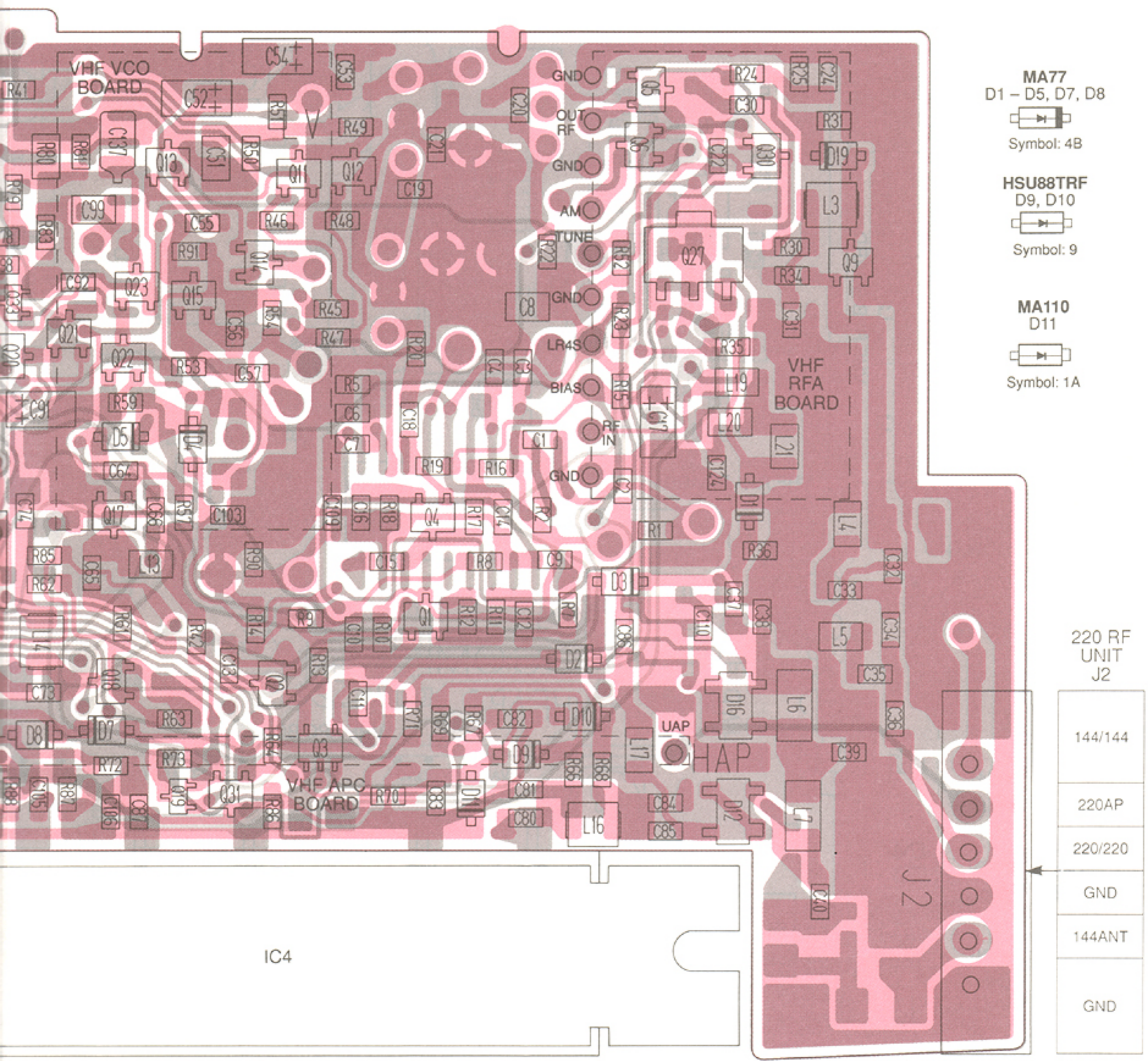
• VHF RF UNIT (BOTTOM VIEW)



• VHF RFA BOARD (BOTTOM VIEW)

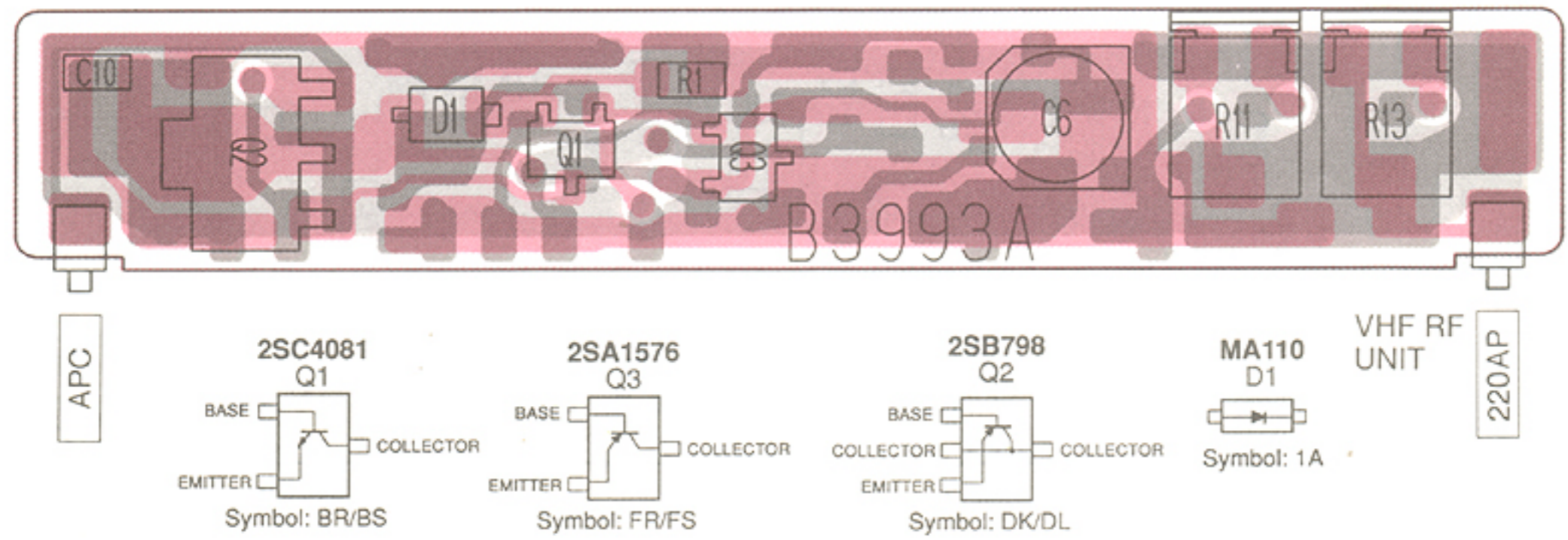


(BOTTOM VIEW)

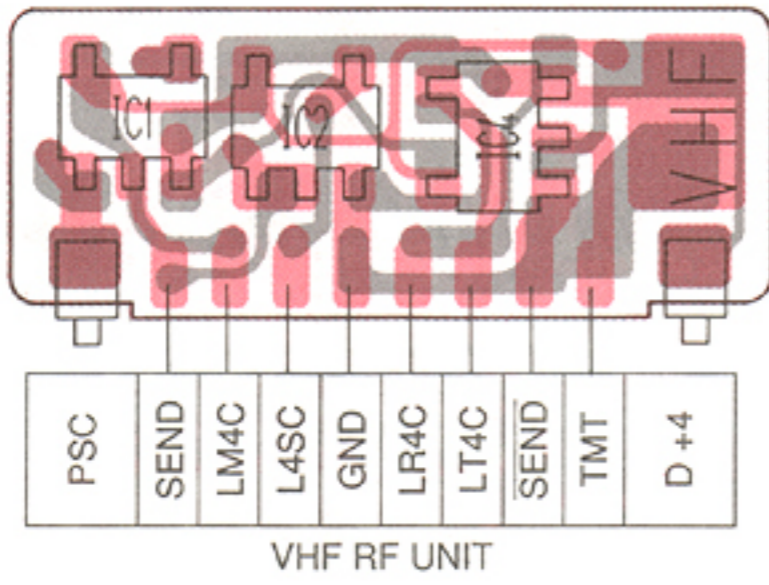


Surface Inside Underside

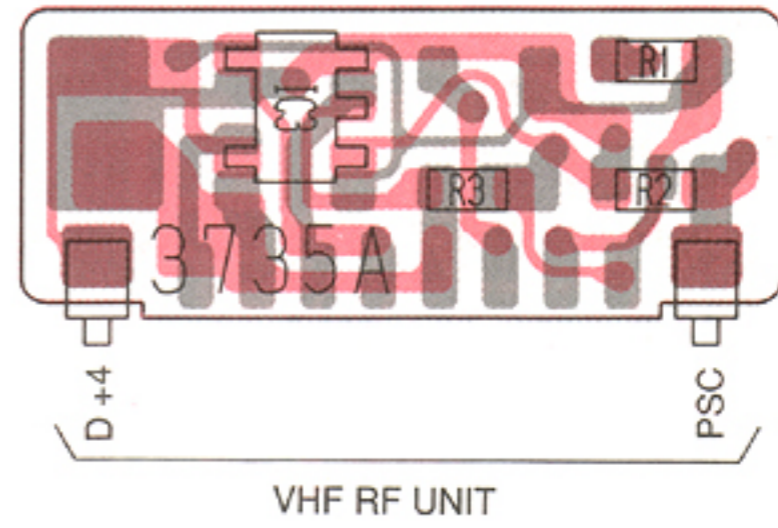
• VHF APC BOARD (BOTTOM VIEW)



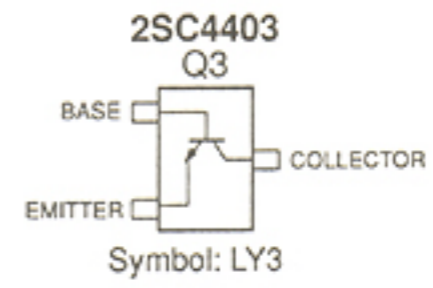
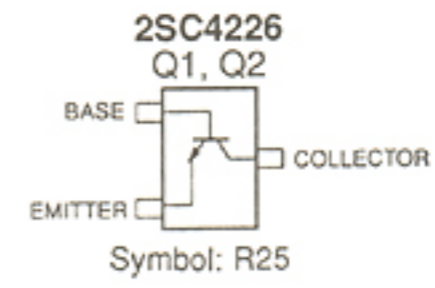
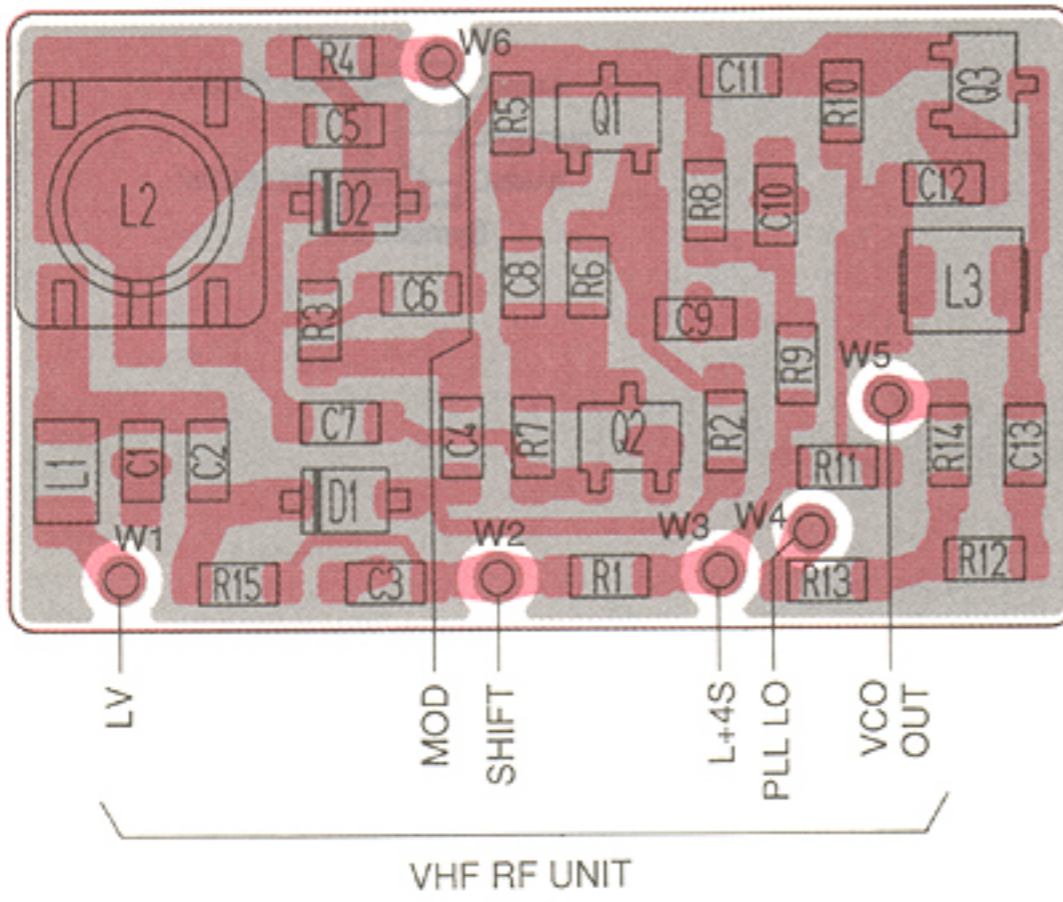
• VHF DATA BOARD (TOP VIEW)



• VHF DATA BOARD (BOTTOM VIEW)

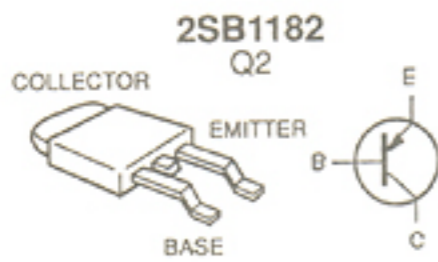
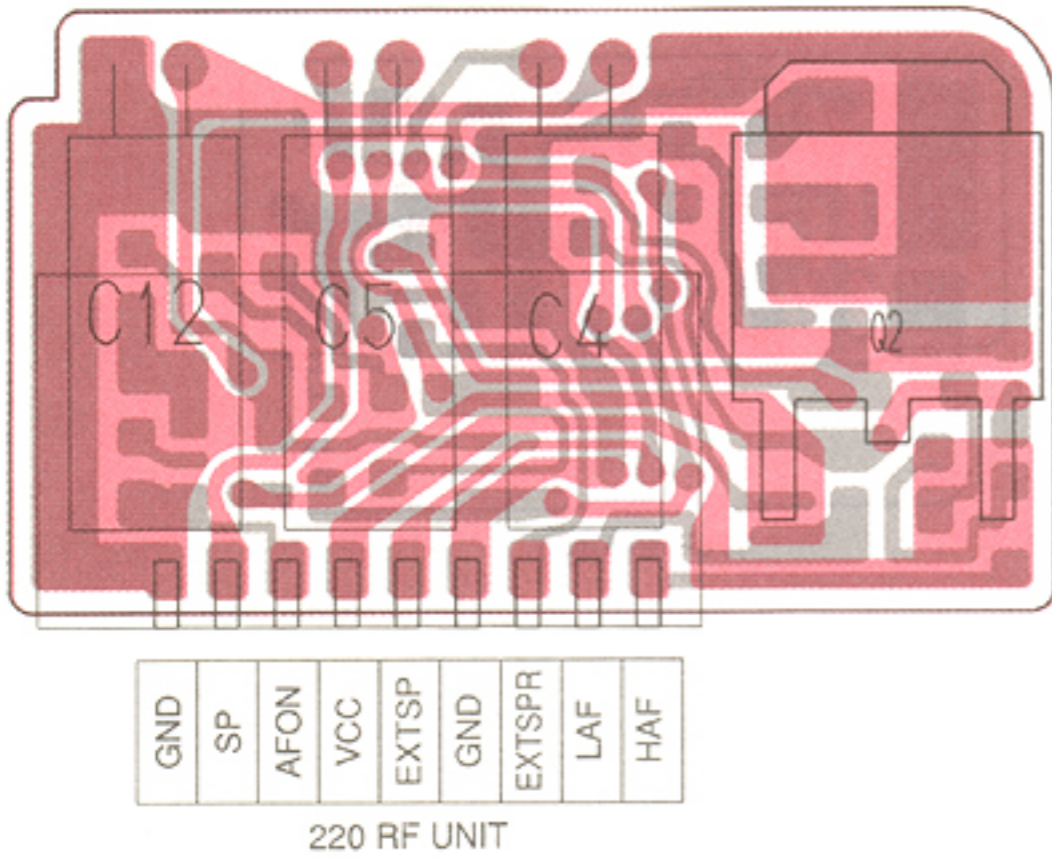


• VHF VCO BOARD (TOP VIEW)

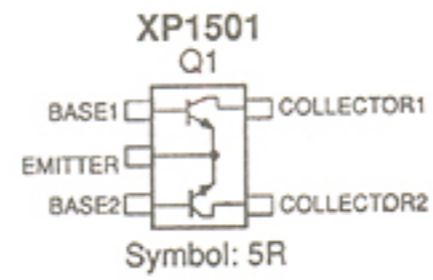
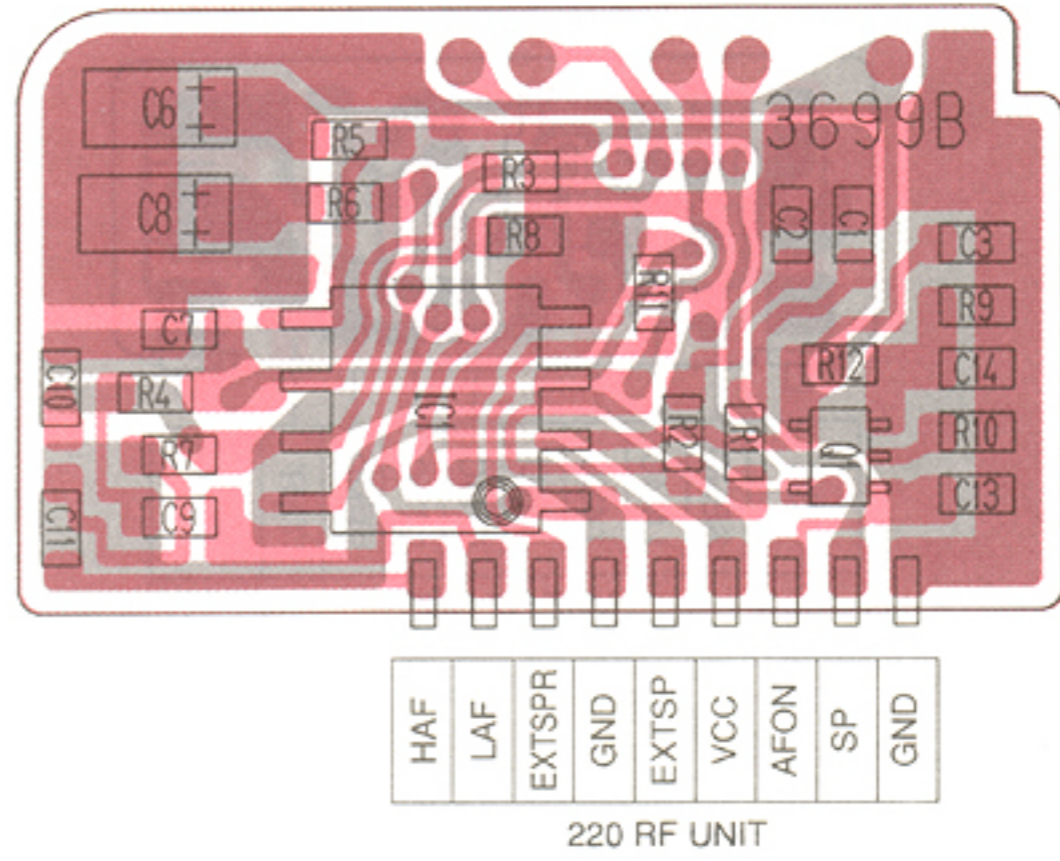


4-4 220 RF UNIT

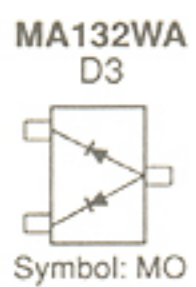
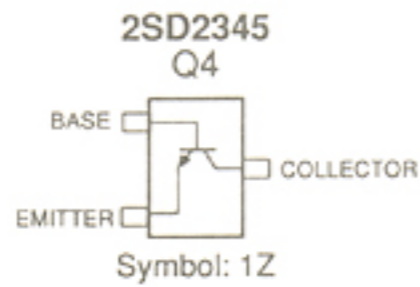
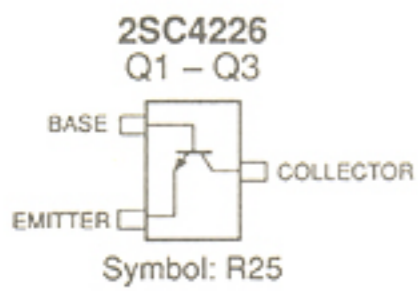
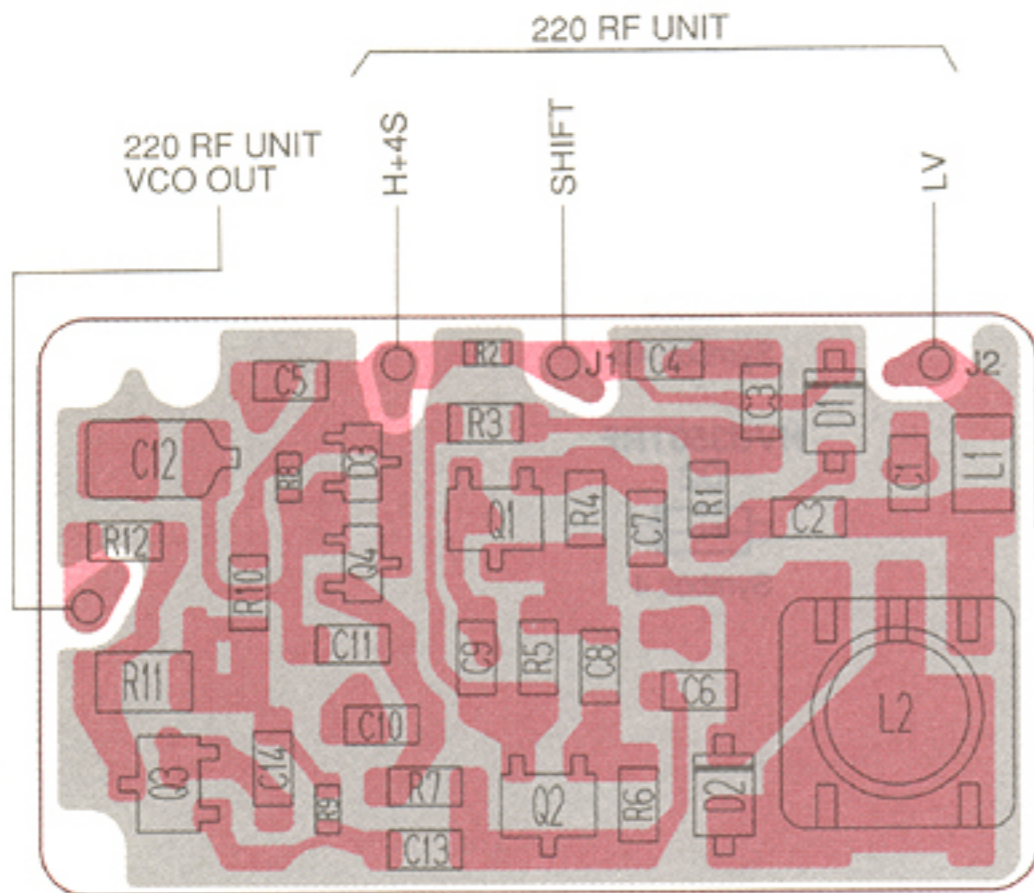
• AF BOARD (TOP VIEW)



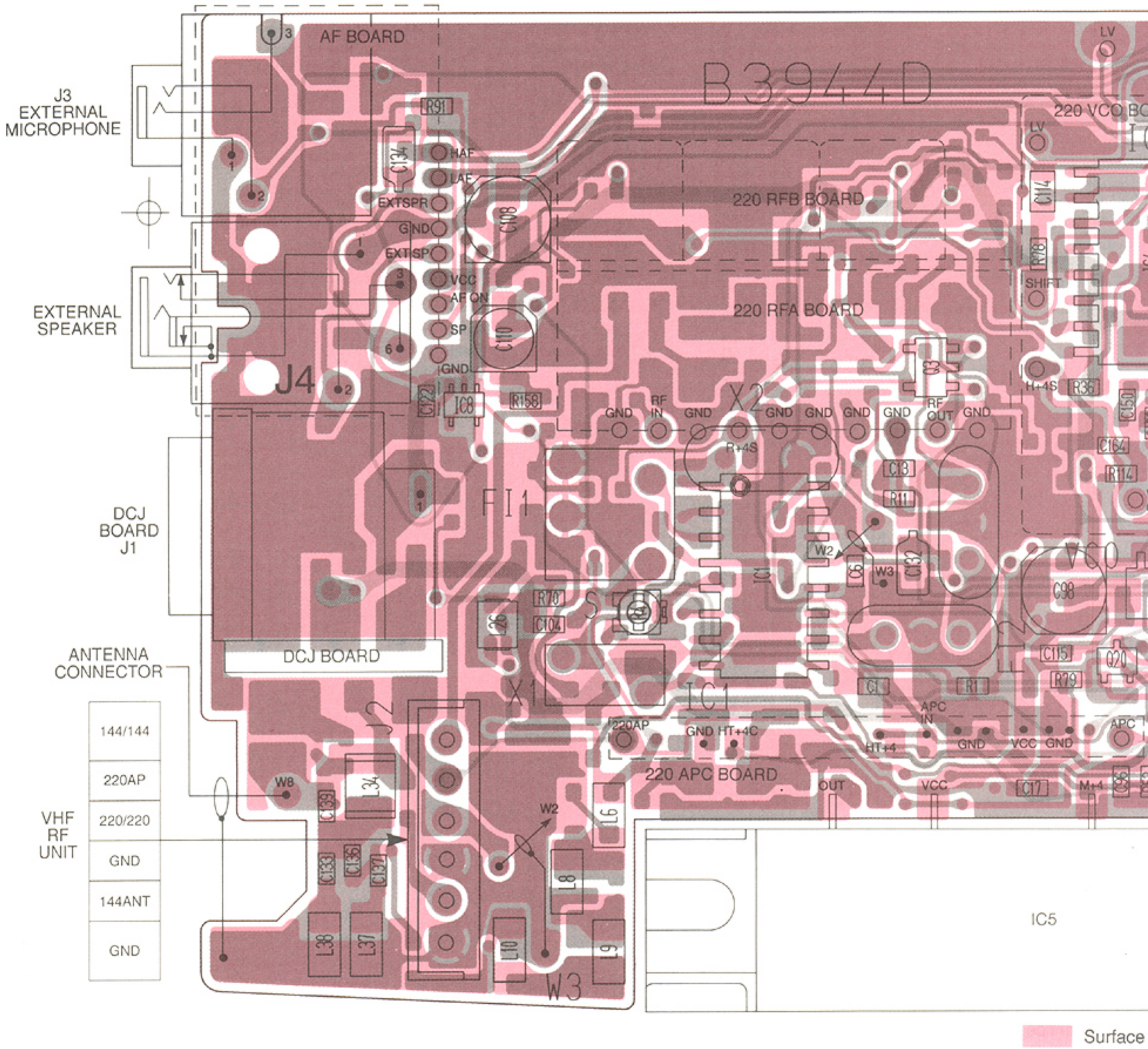
• AF BOARD (BOTTOM VIEW)



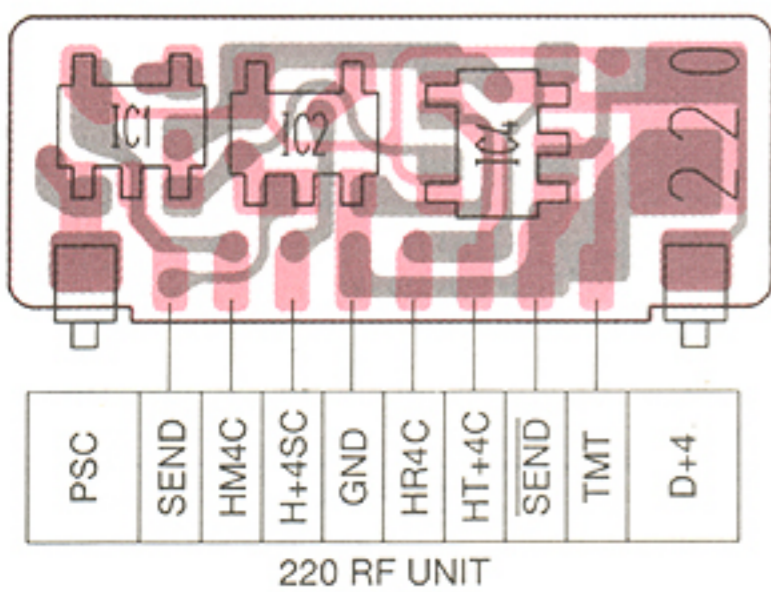
• 220 VCO BOARD (TOP VIEW)



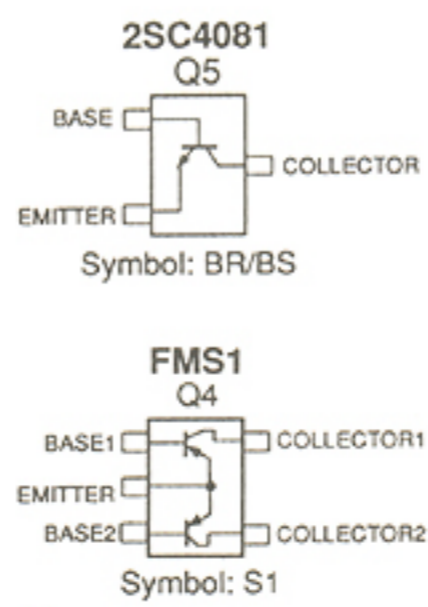
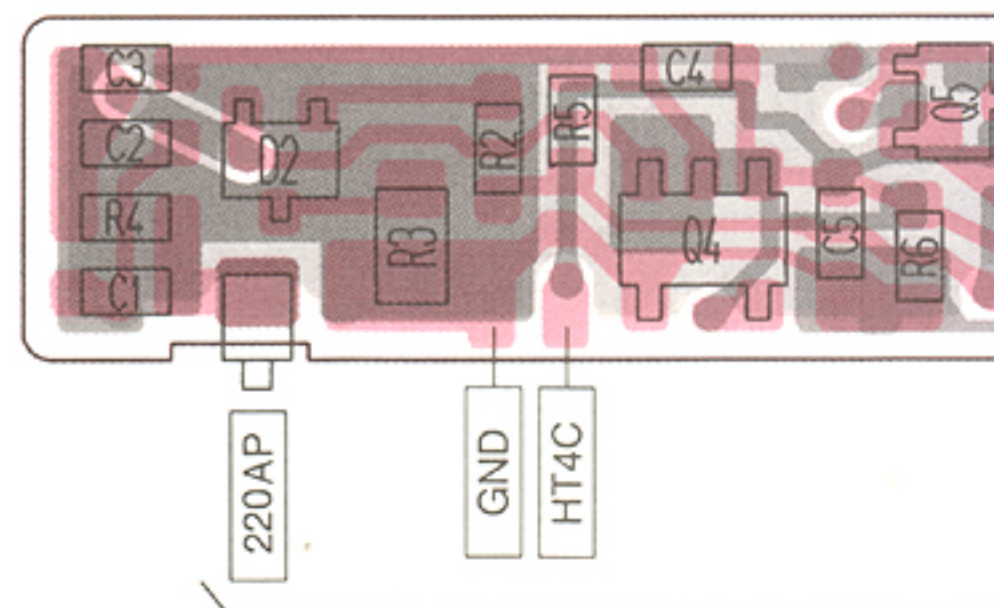
• 220 RF UNIT (TOP VIEW)



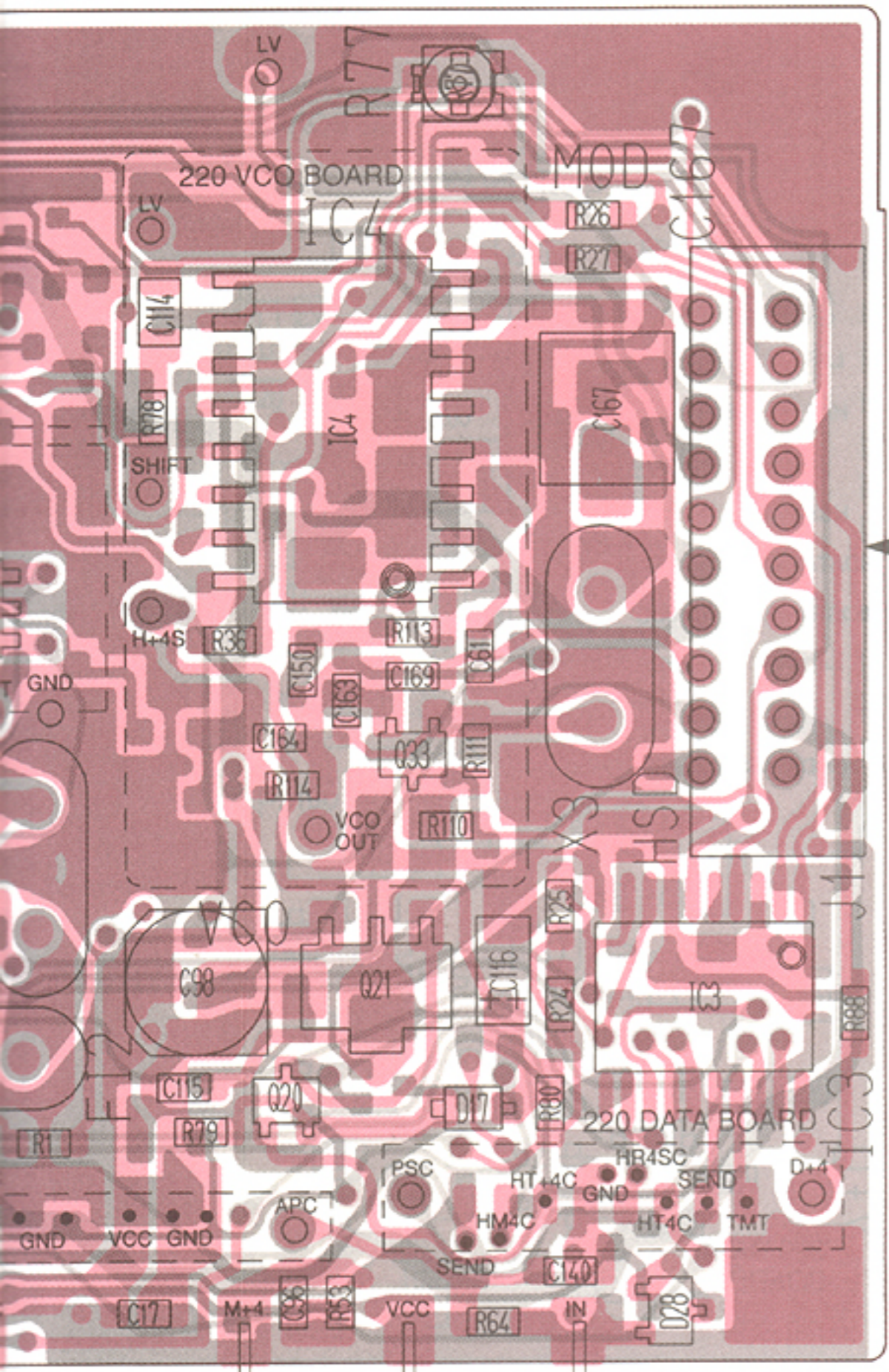
• 220 DATA BOARD (TOP VIEW)



• 220 APC BOARD (TOP VIEW)

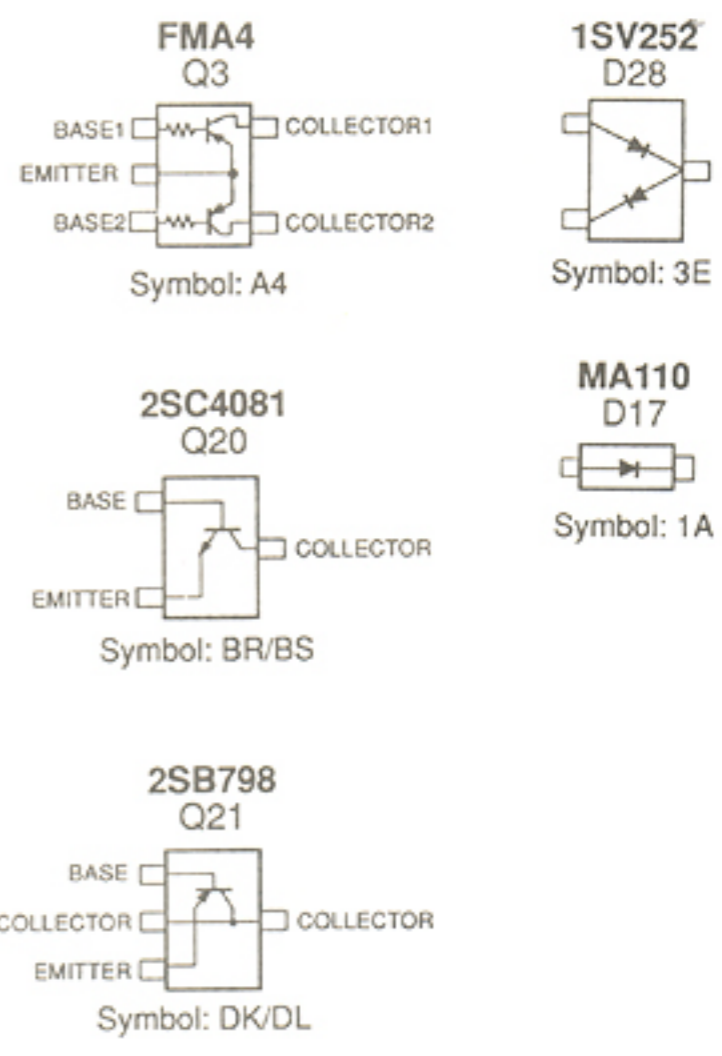


The combination of this page and the next page shows the unit layout in the same configuration as the actual P.C. Board.



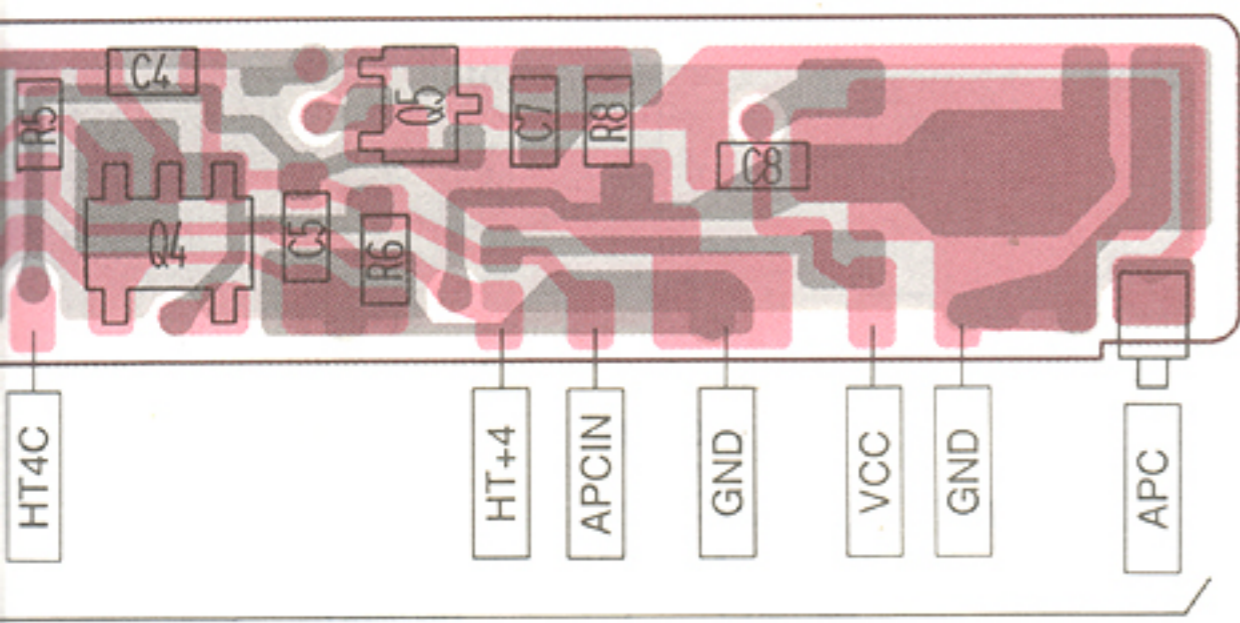
CONNECT UNIT J2

HPL STB	AFON
EXT MIC	LAF
SP	HAF
HMOD	+4
HUL	HCK
HR4S	H DATA
VCC	HIO STB
REF	+4C
HDET	⊖
HSD	GND

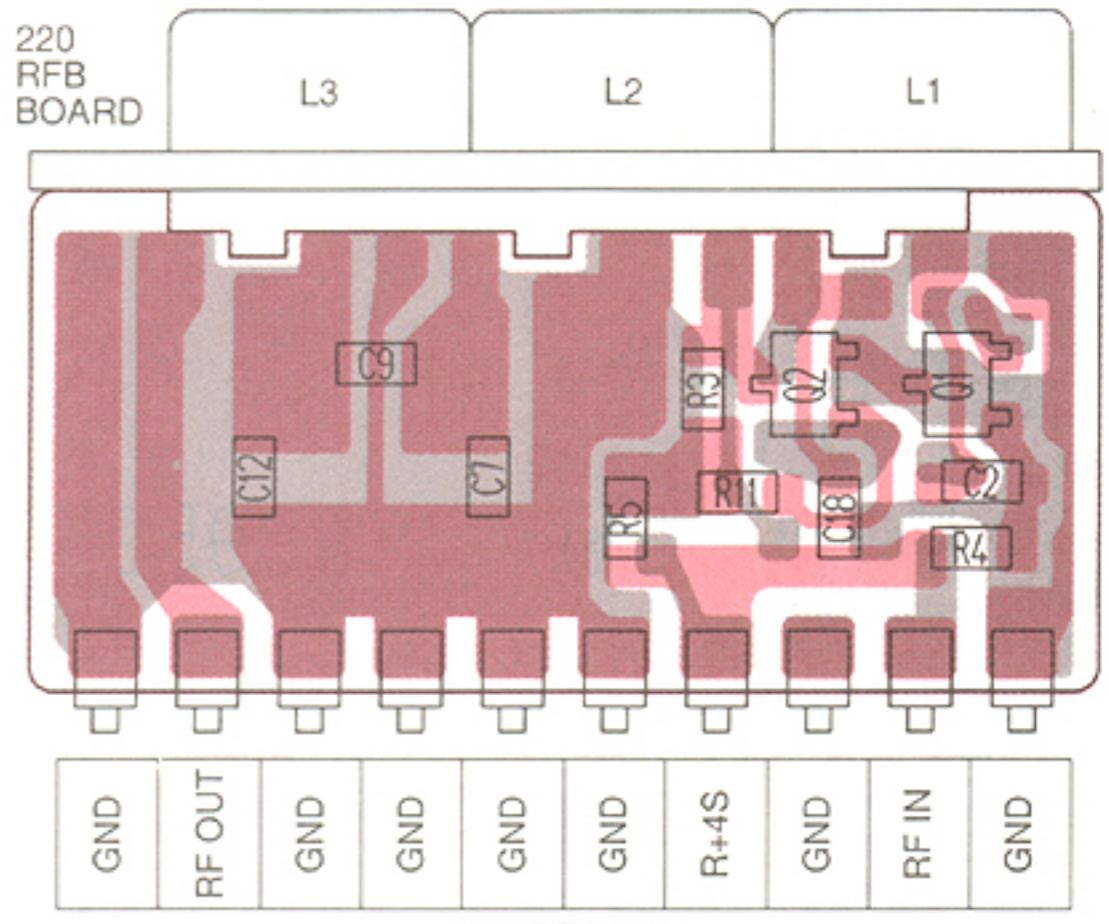


Surface Inside Underside

VIEW)



220 RF UNIT



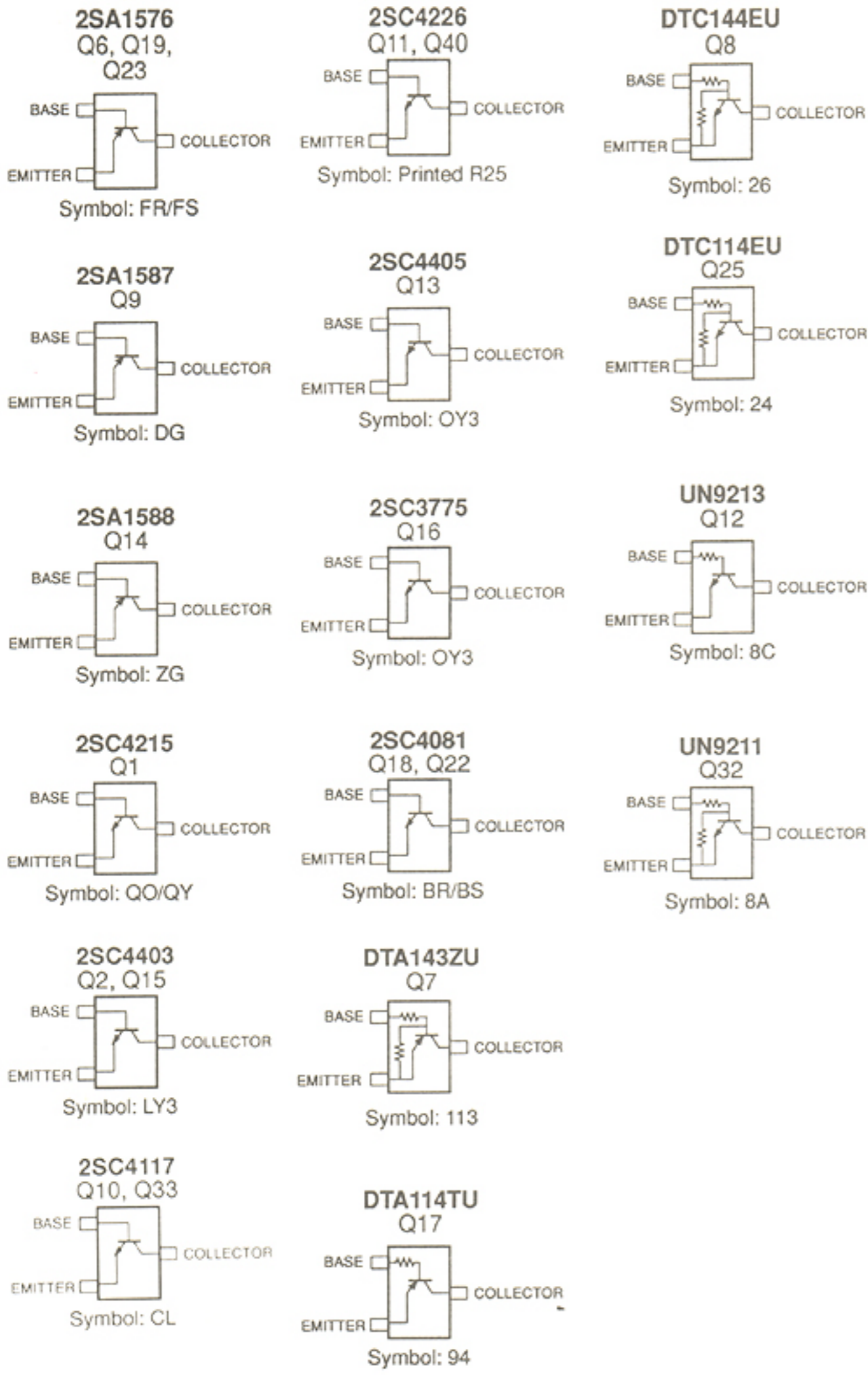
GND RF OUT GND GND GND GND R+4S GND RF IN GND

220 RF UNIT

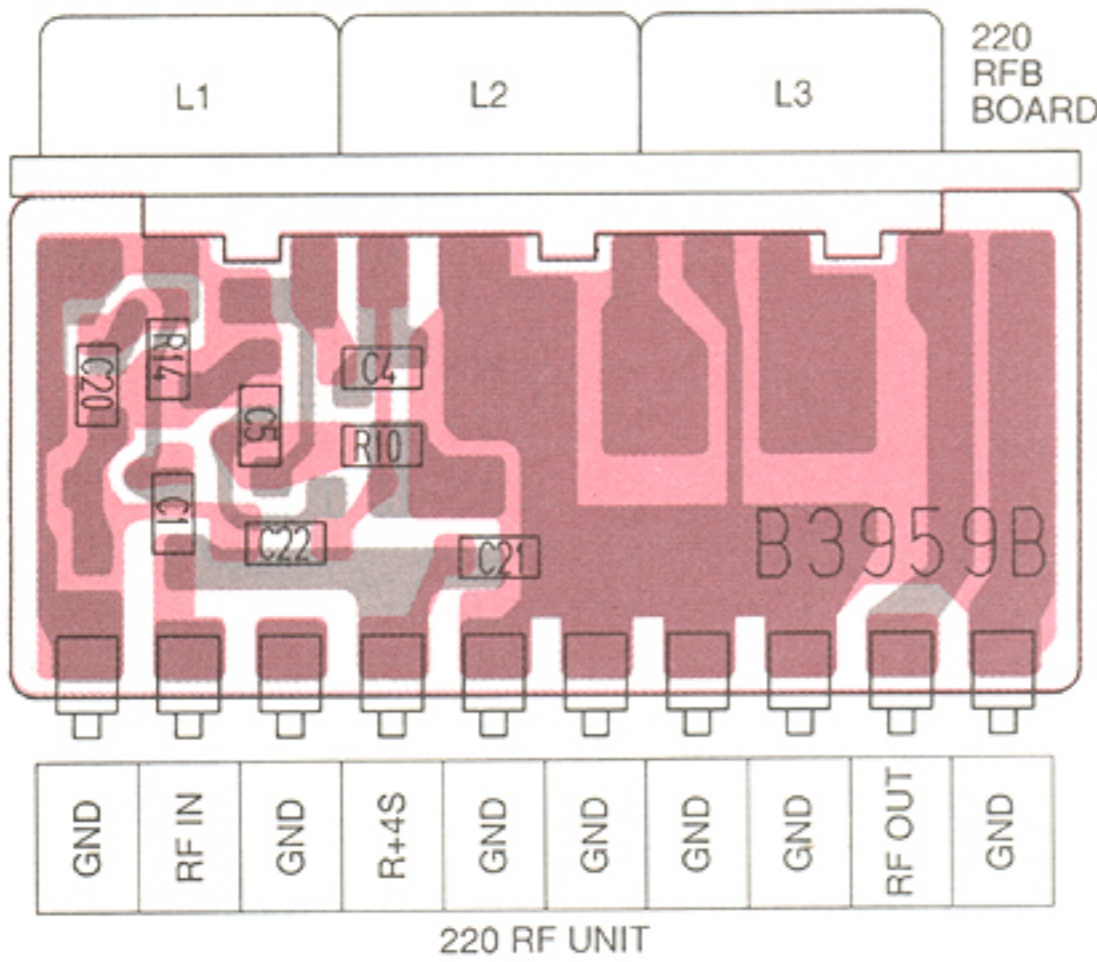


Symbol: FN4

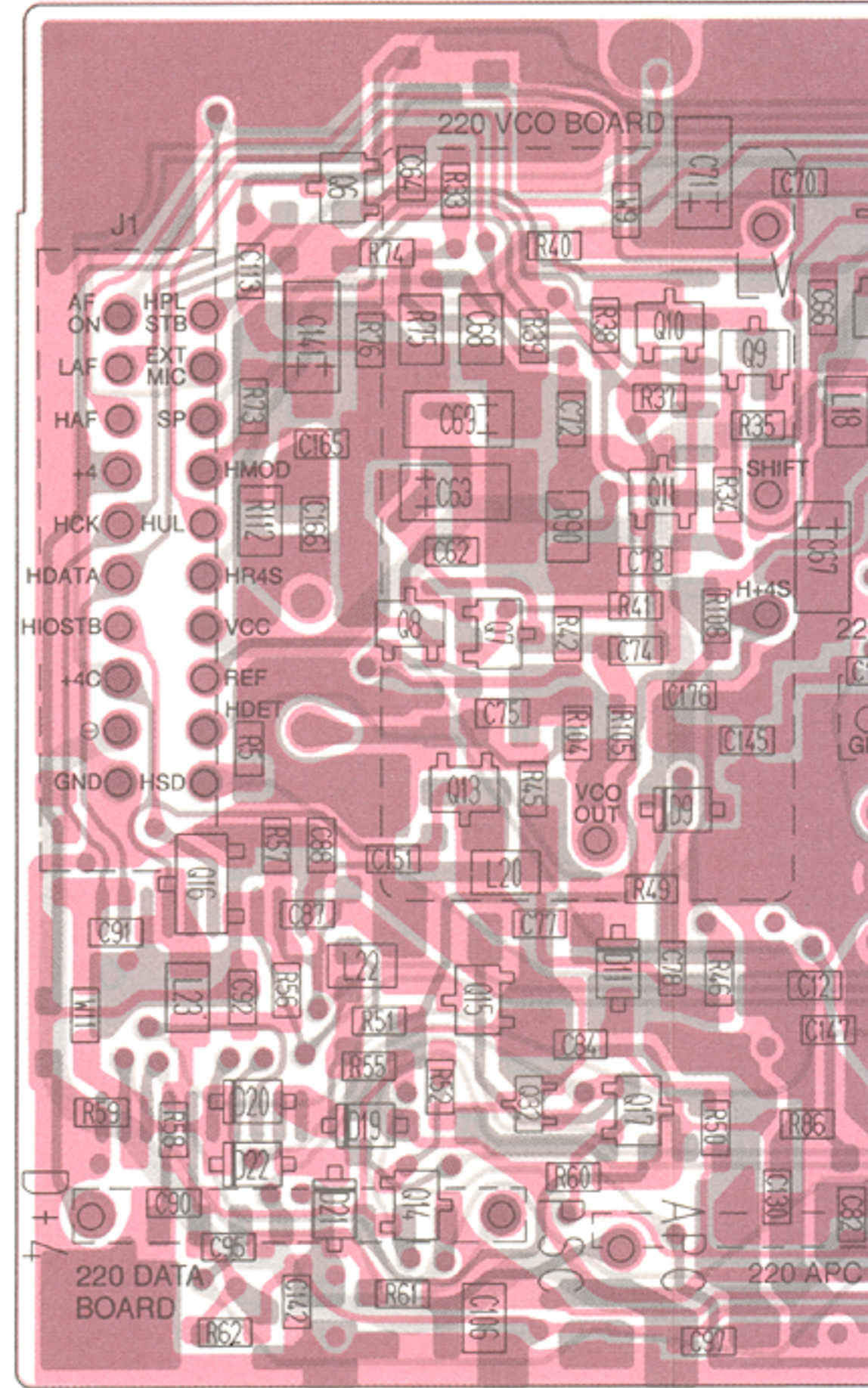
Symbol: OY3



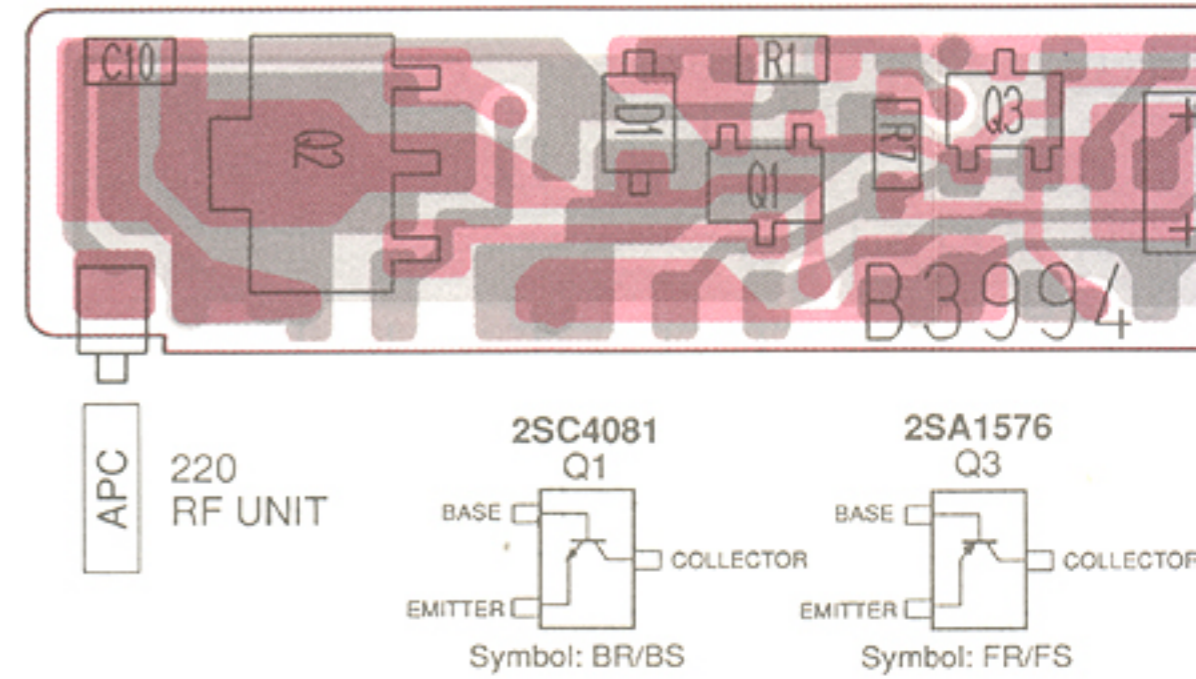
• 220 RFA BOARD (BOTTOM VIEW)

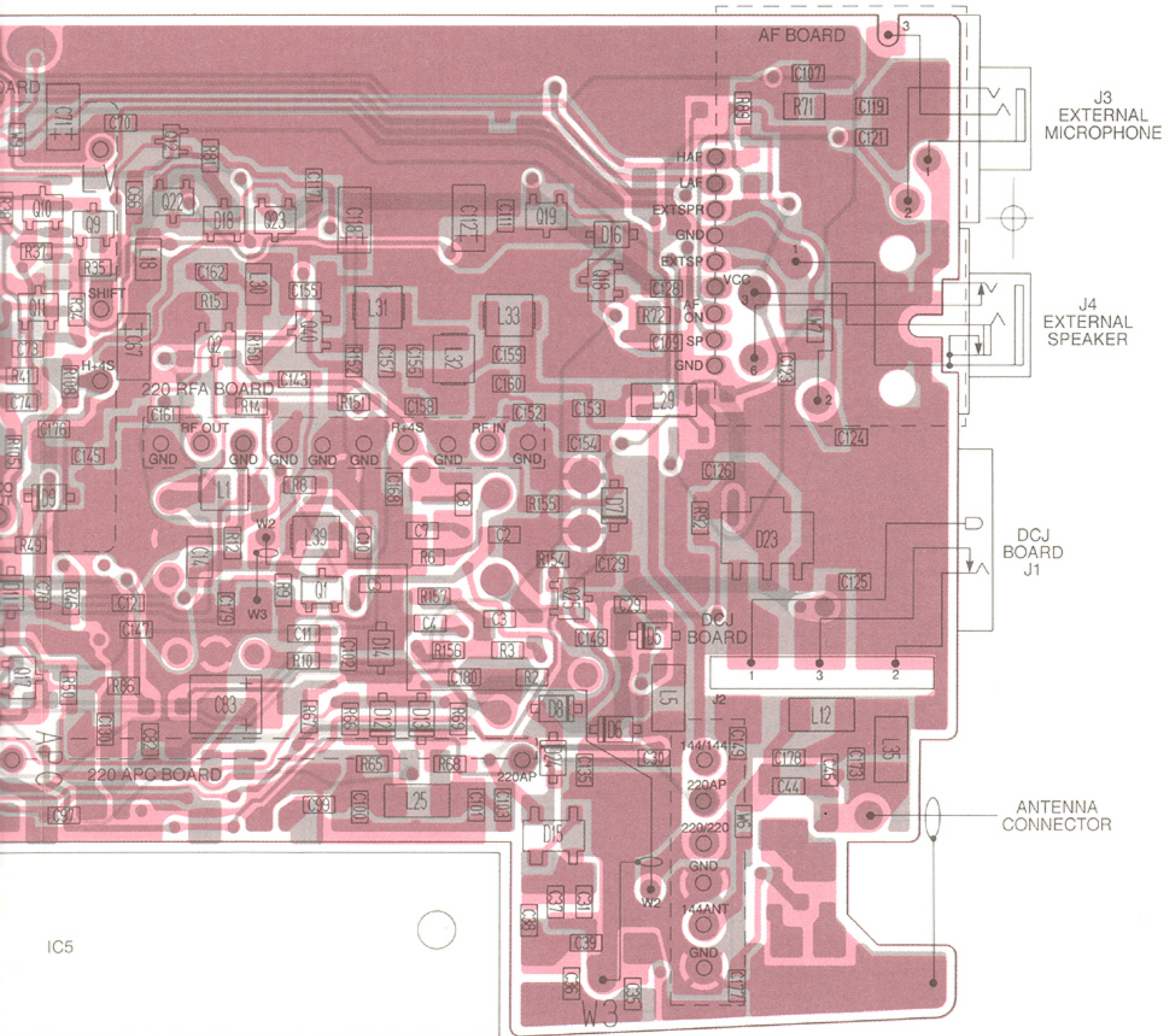
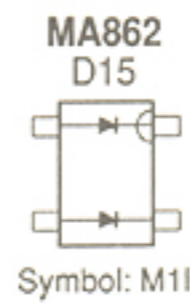
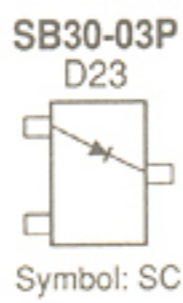
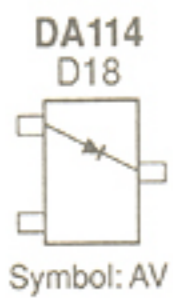


• 220 RF UNIT (BOTTOM VIEW)



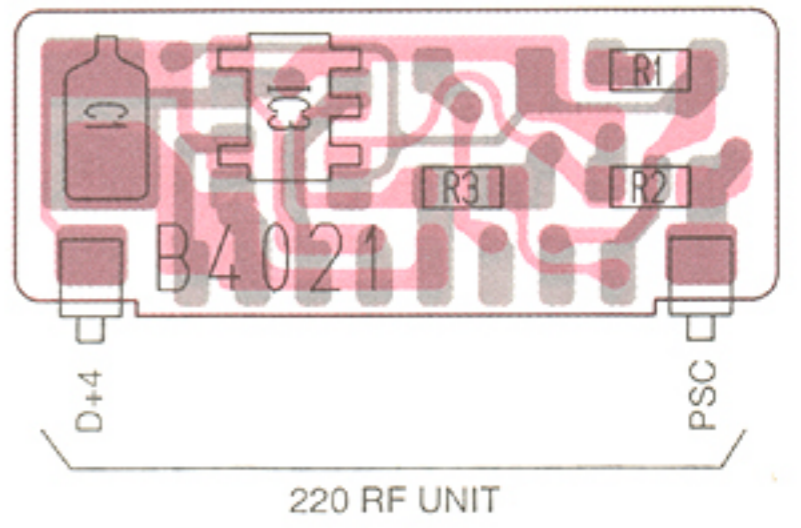
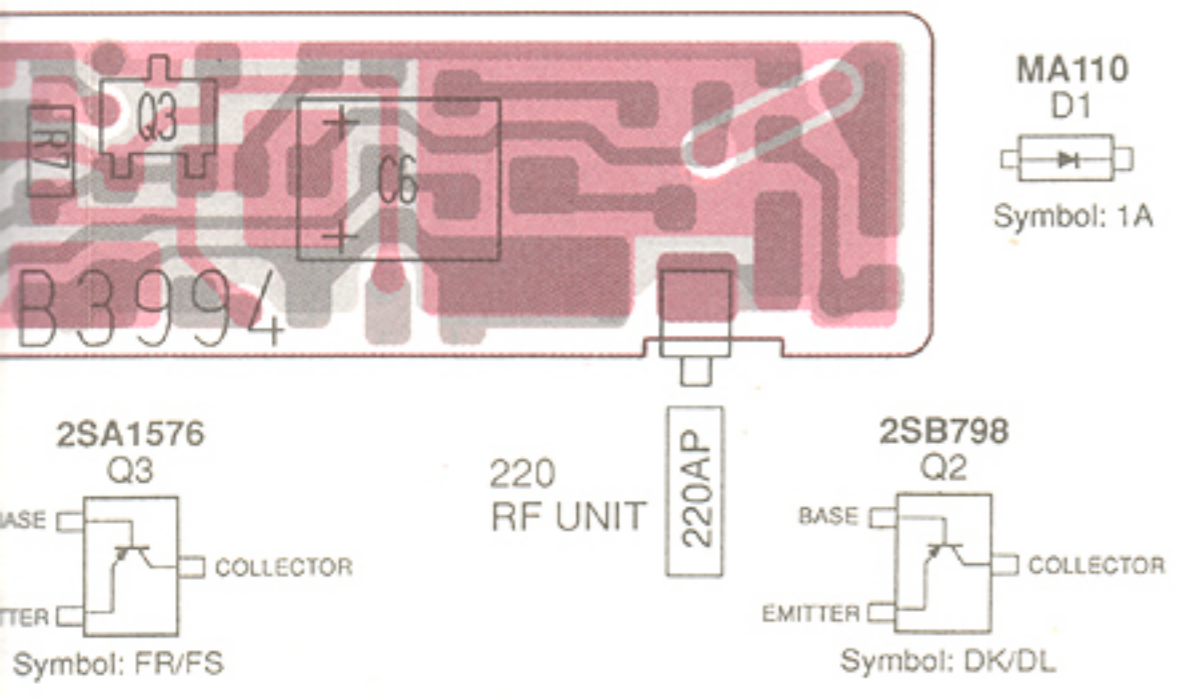
• 220 APC BOARD (BOTTOM VIEW)



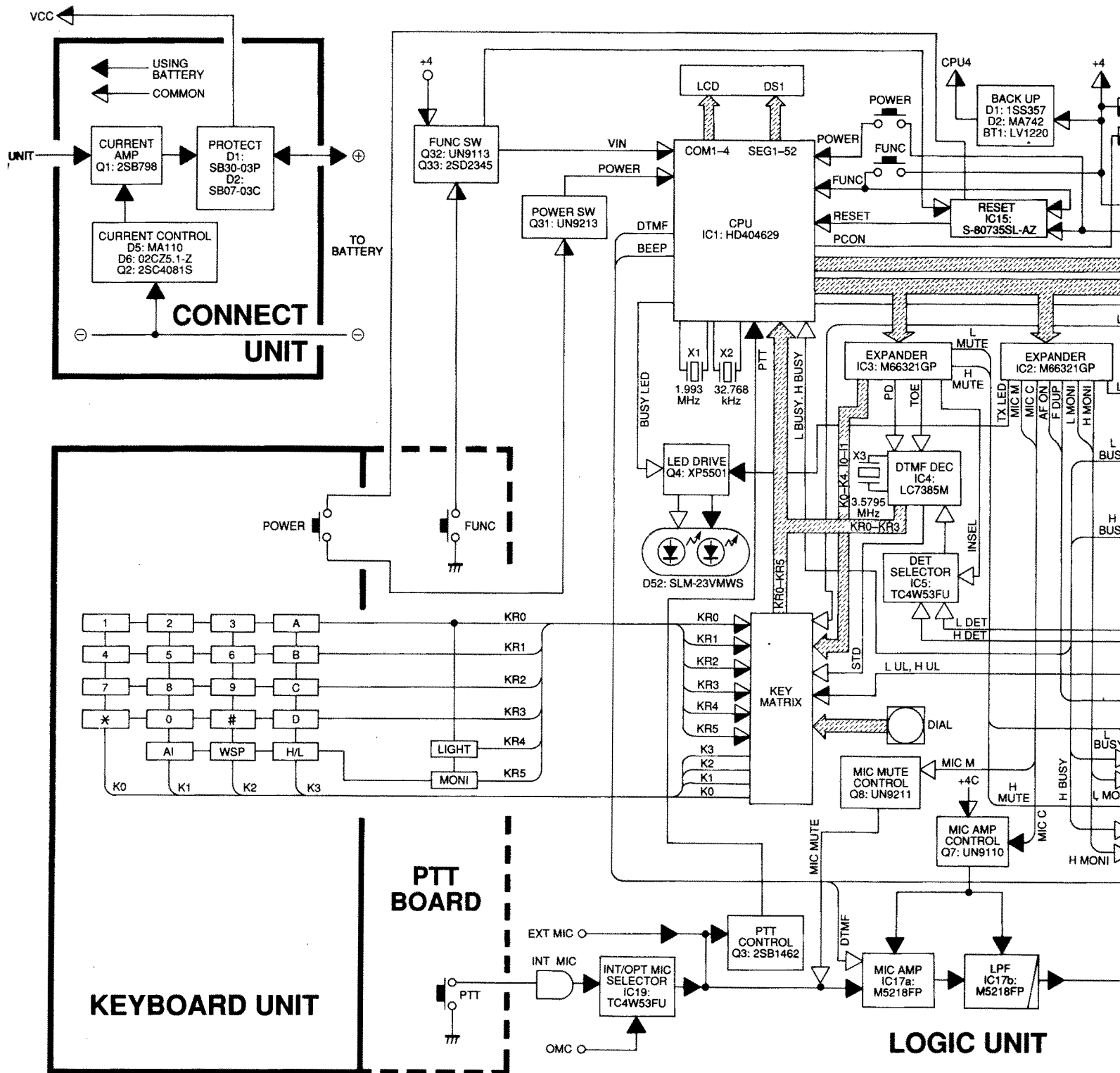


Underside

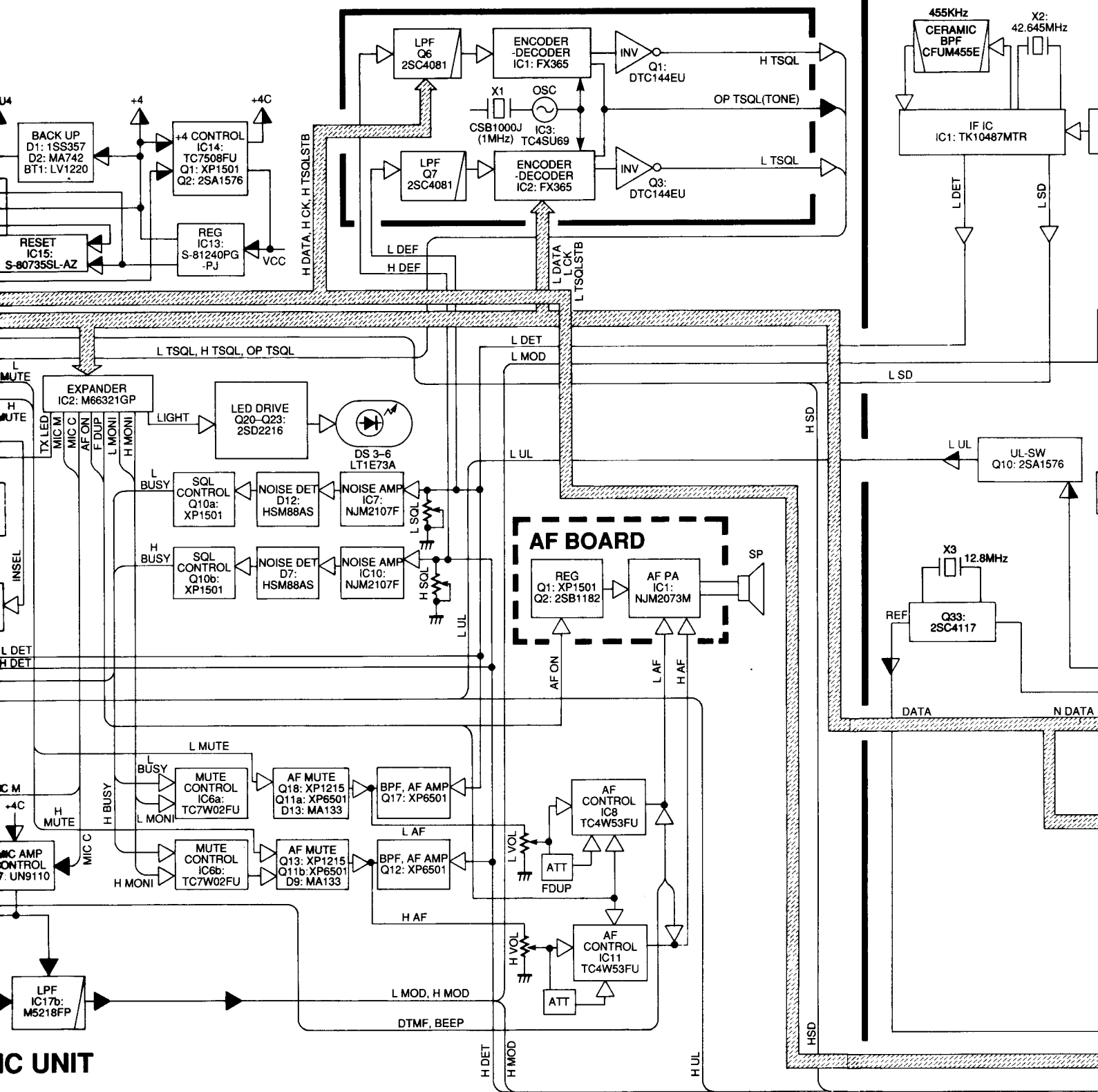
• 220 DATA BOARD (BOTTOM VIEW)

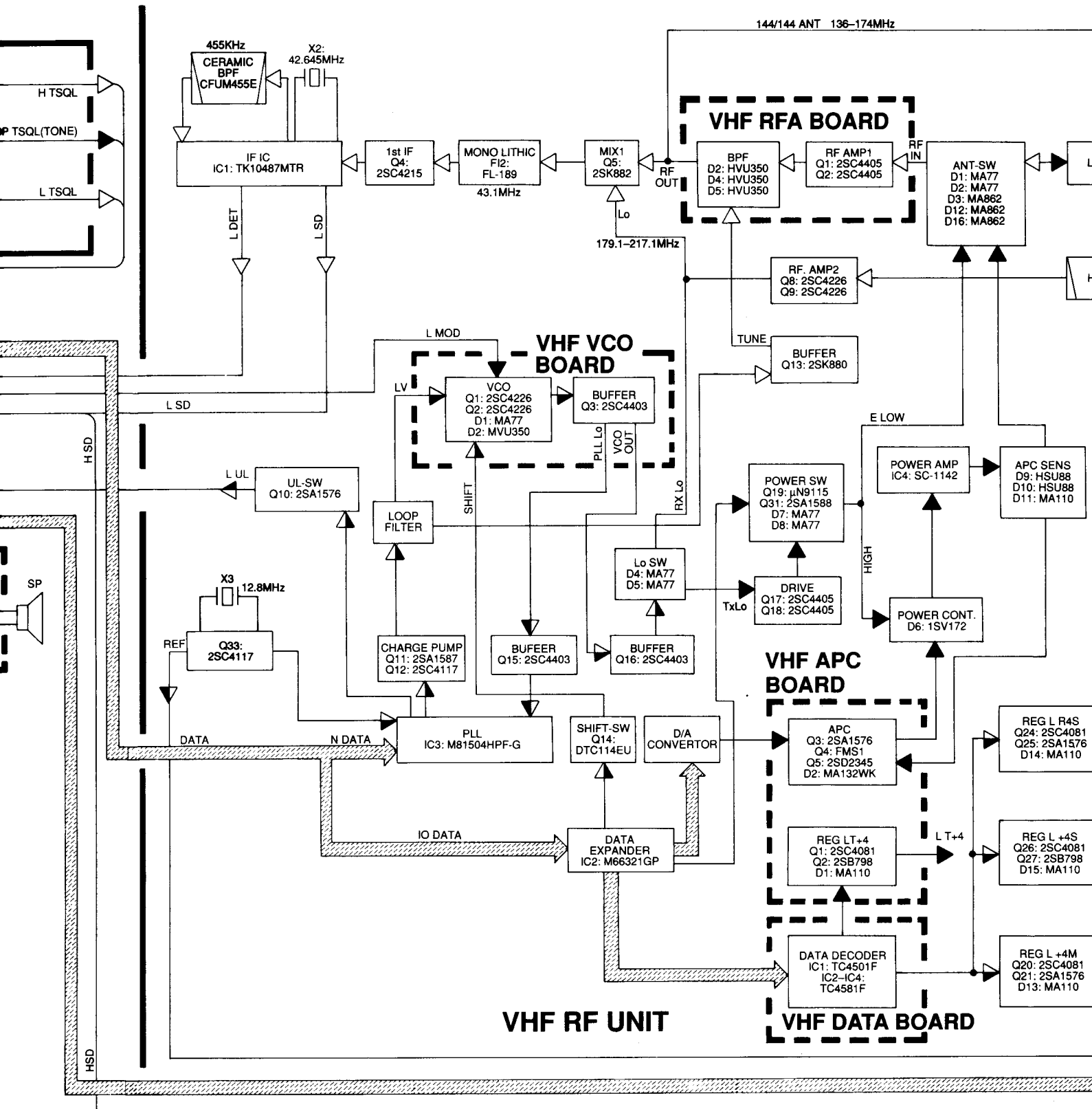


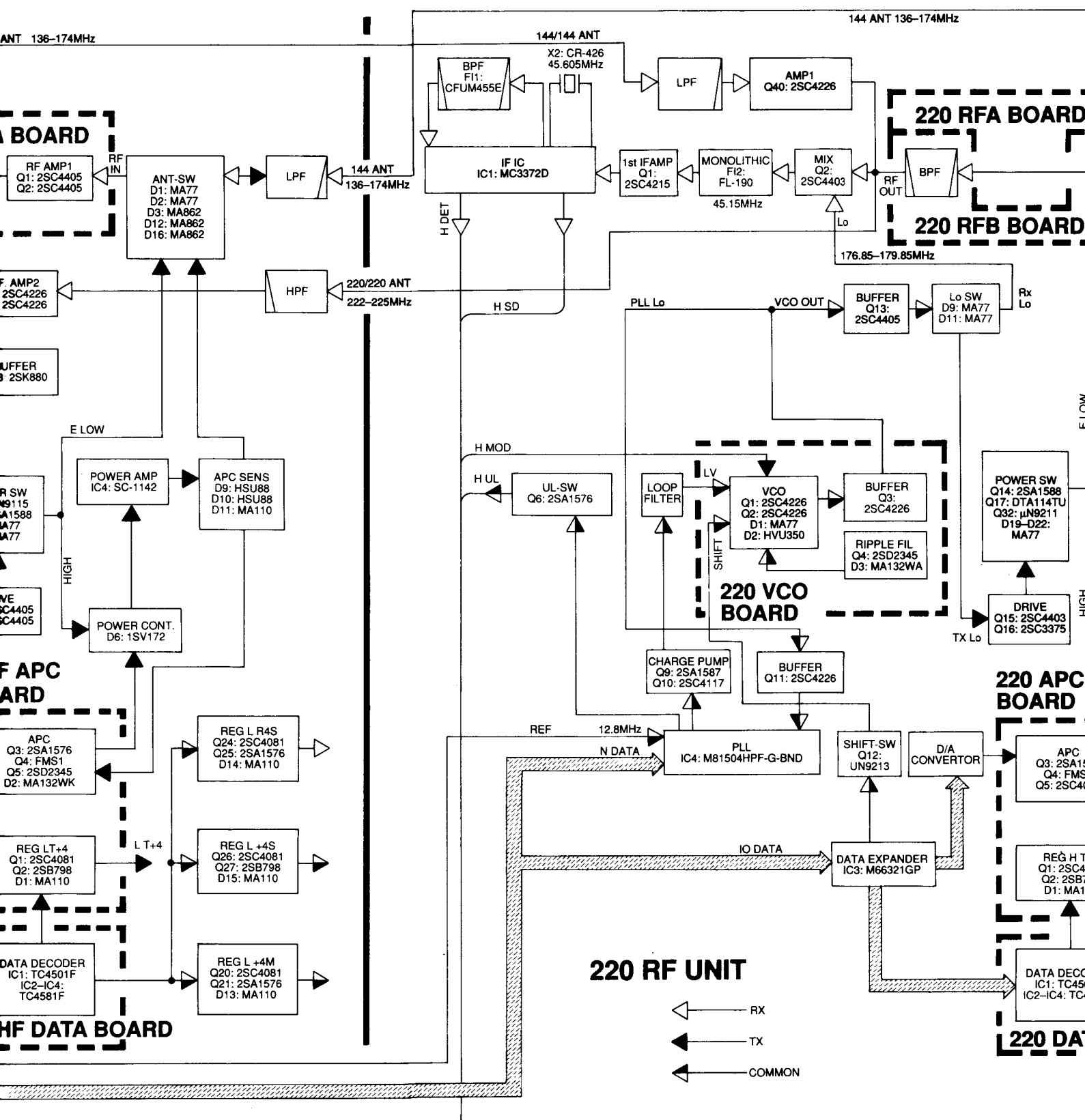
SECTION 5 BLOCK DIAGRAM

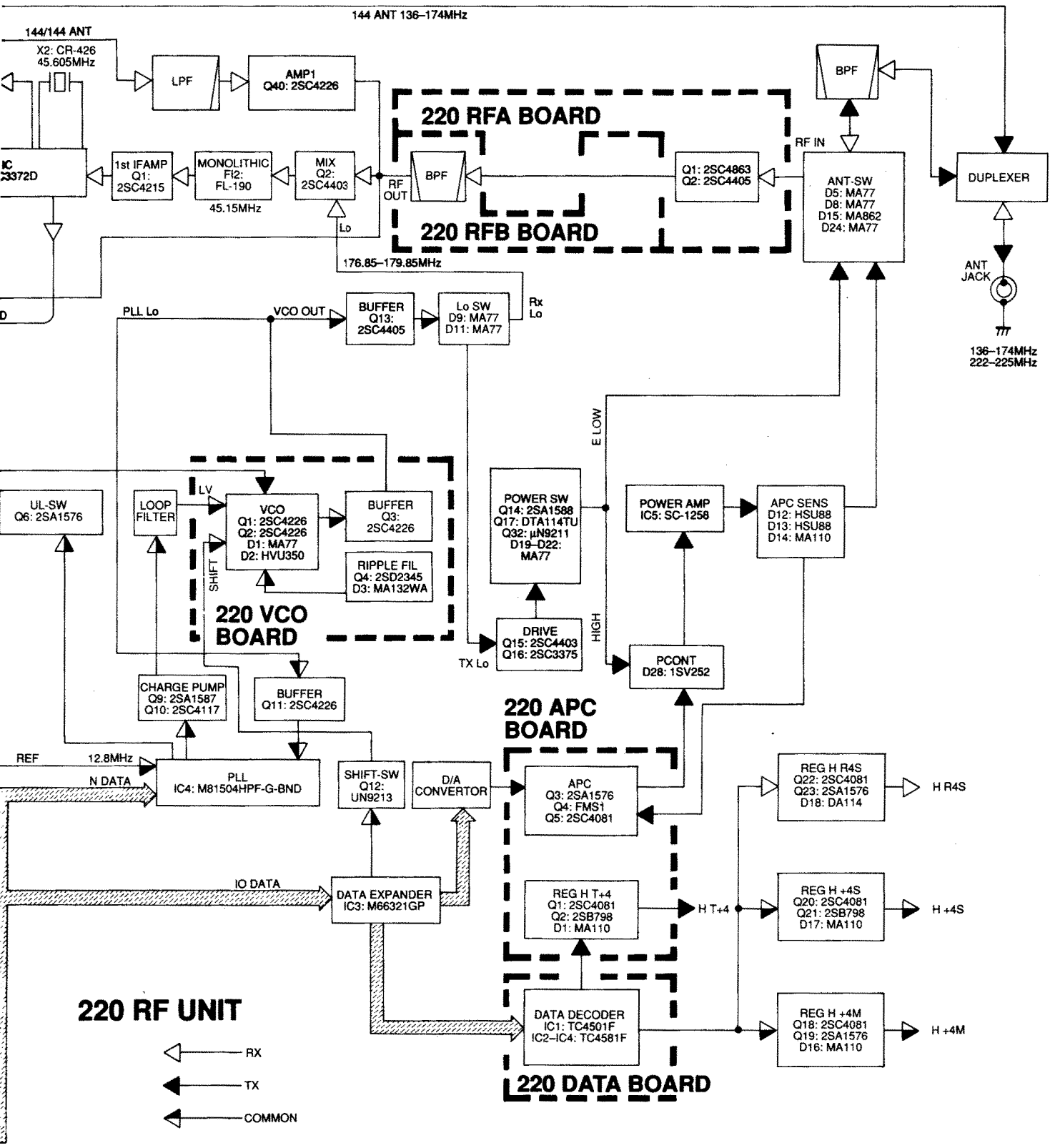


TSQL UNIT



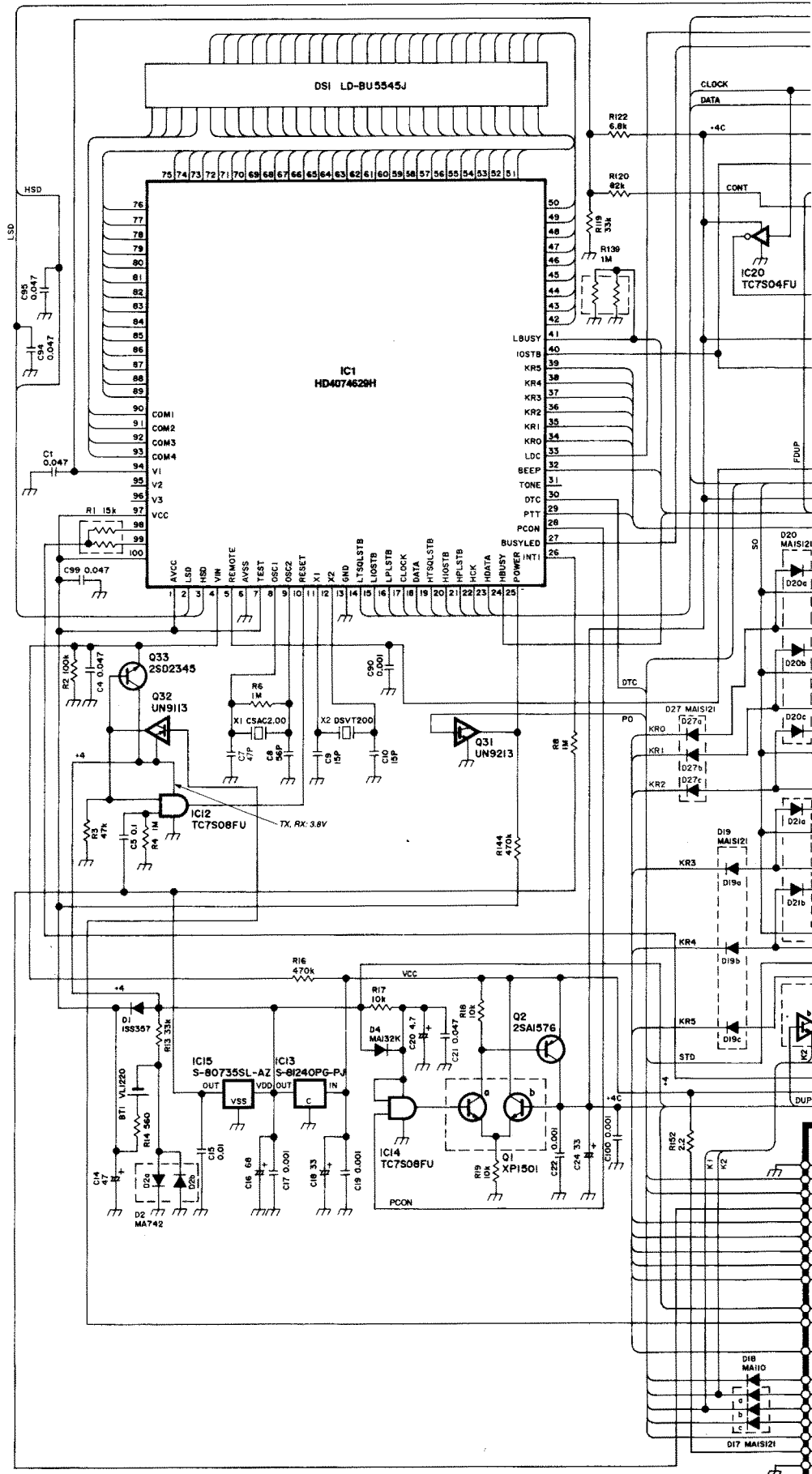


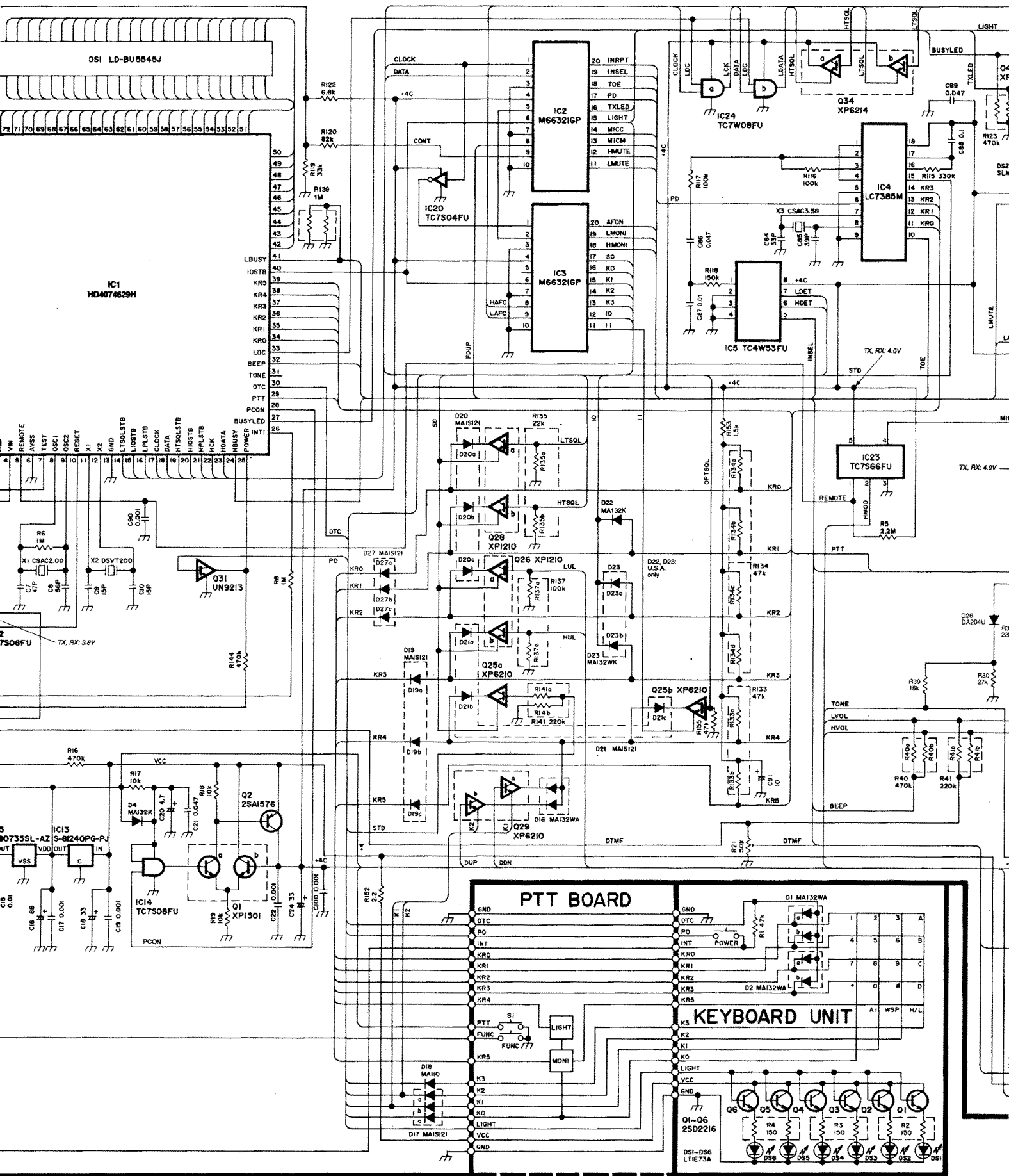


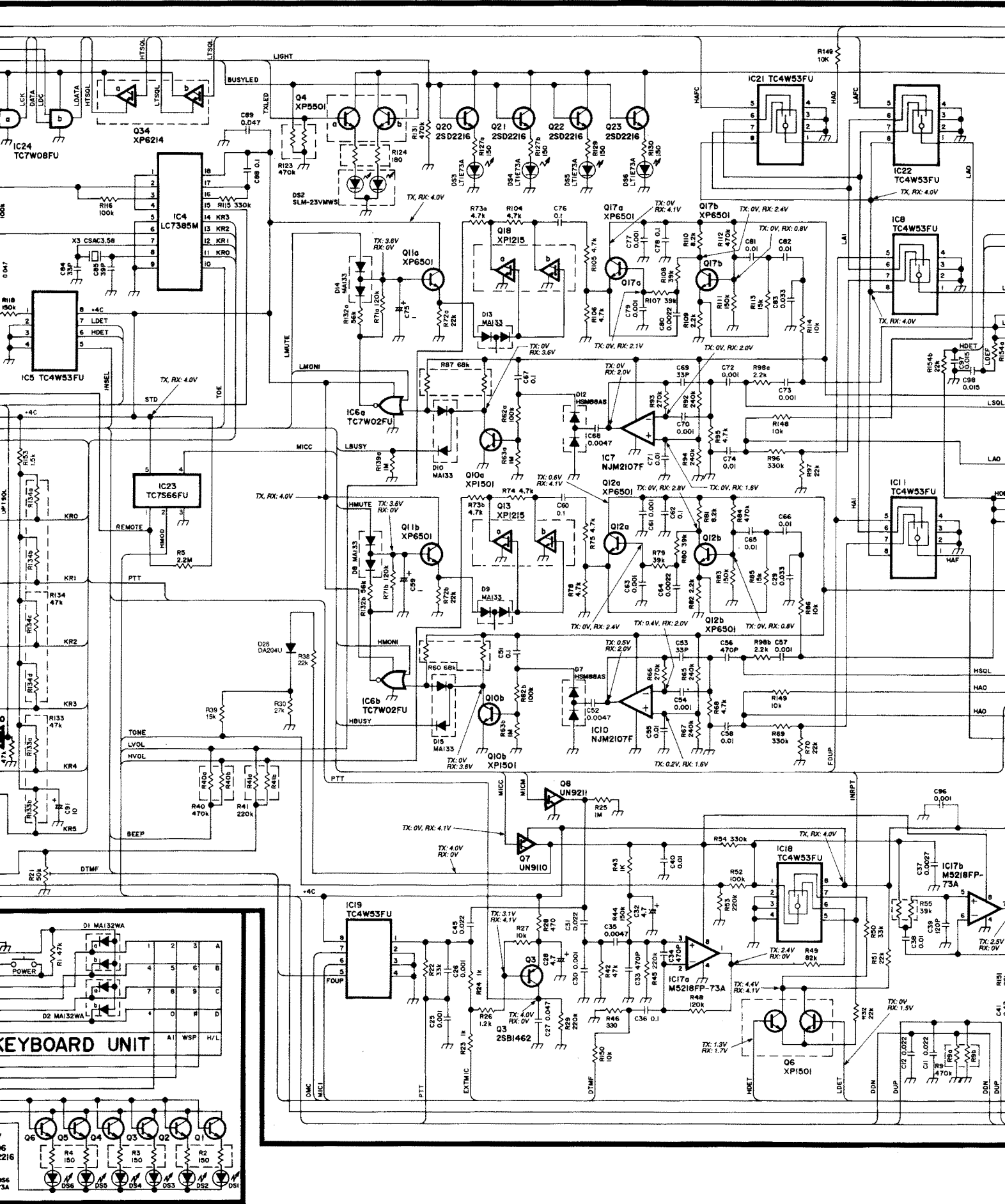


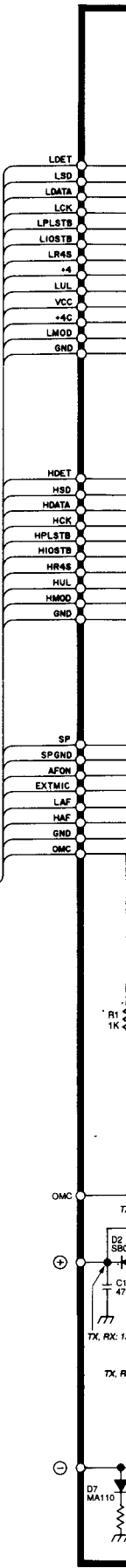
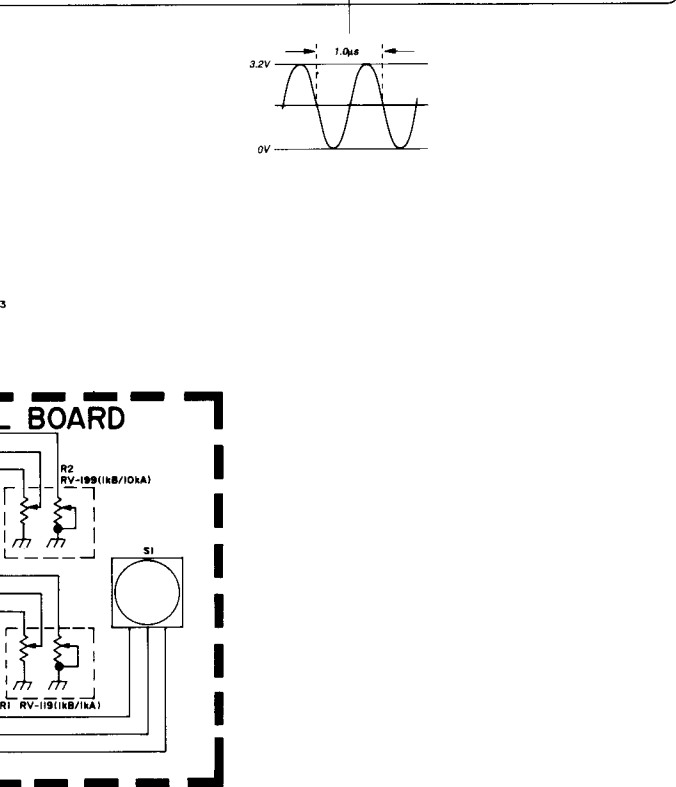
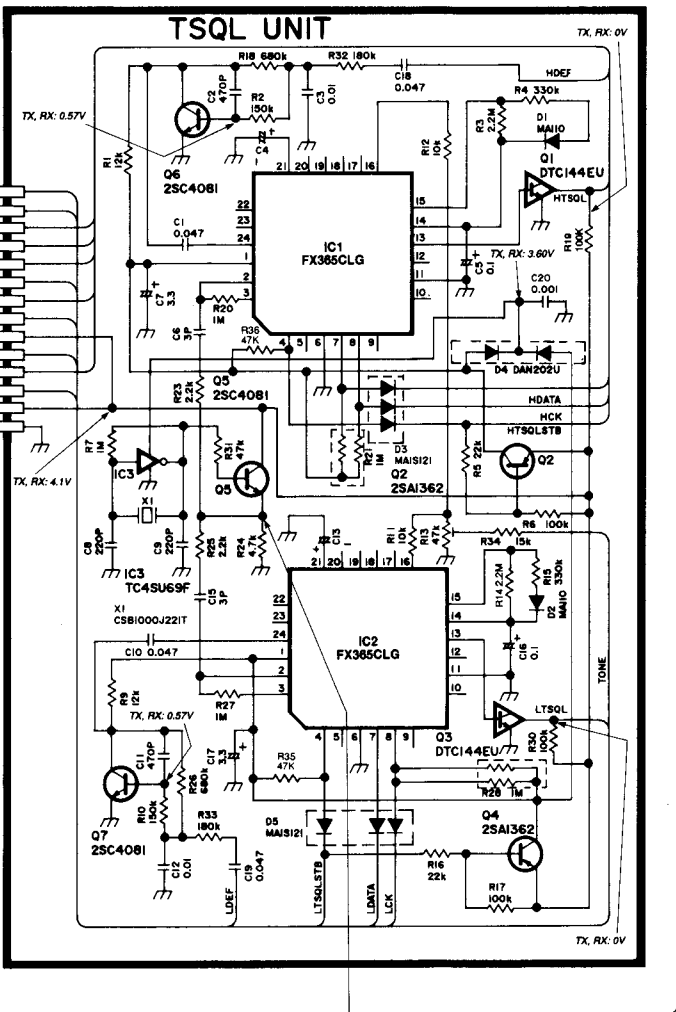
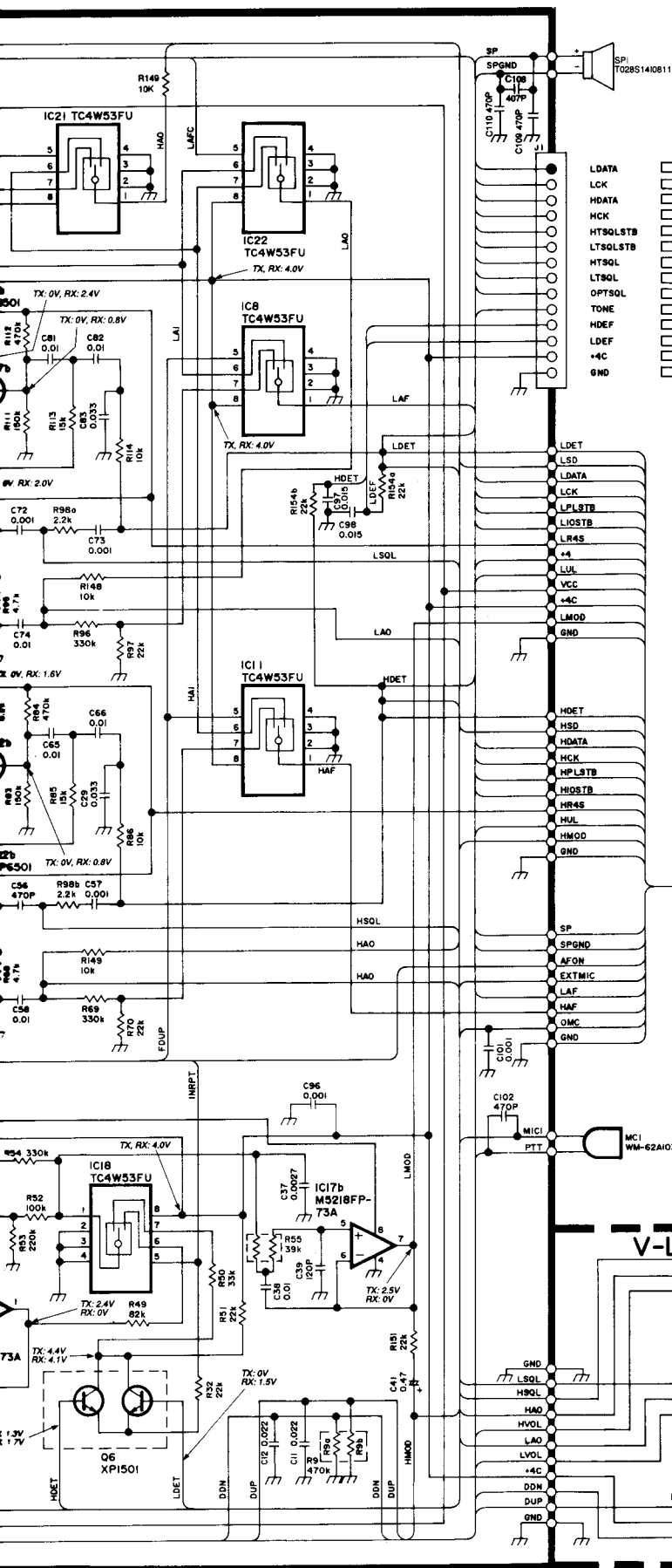
SECTION 6 VOLTAGE DIAGRAM

LOGIC UNIT

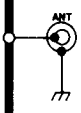
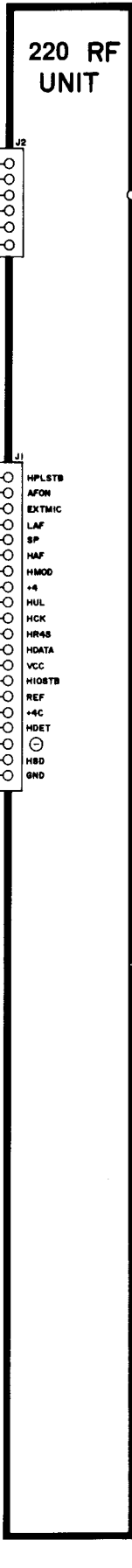
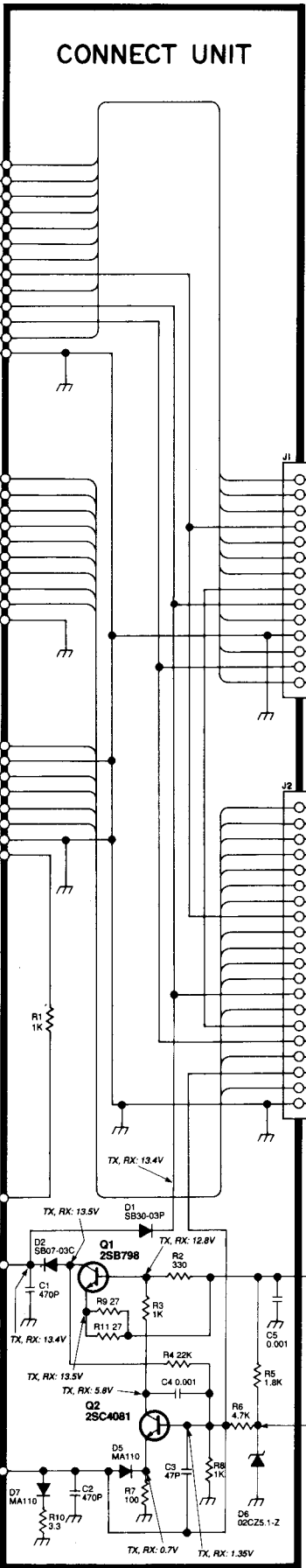
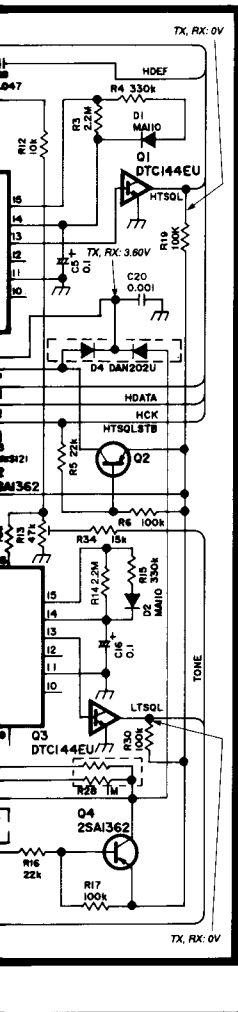




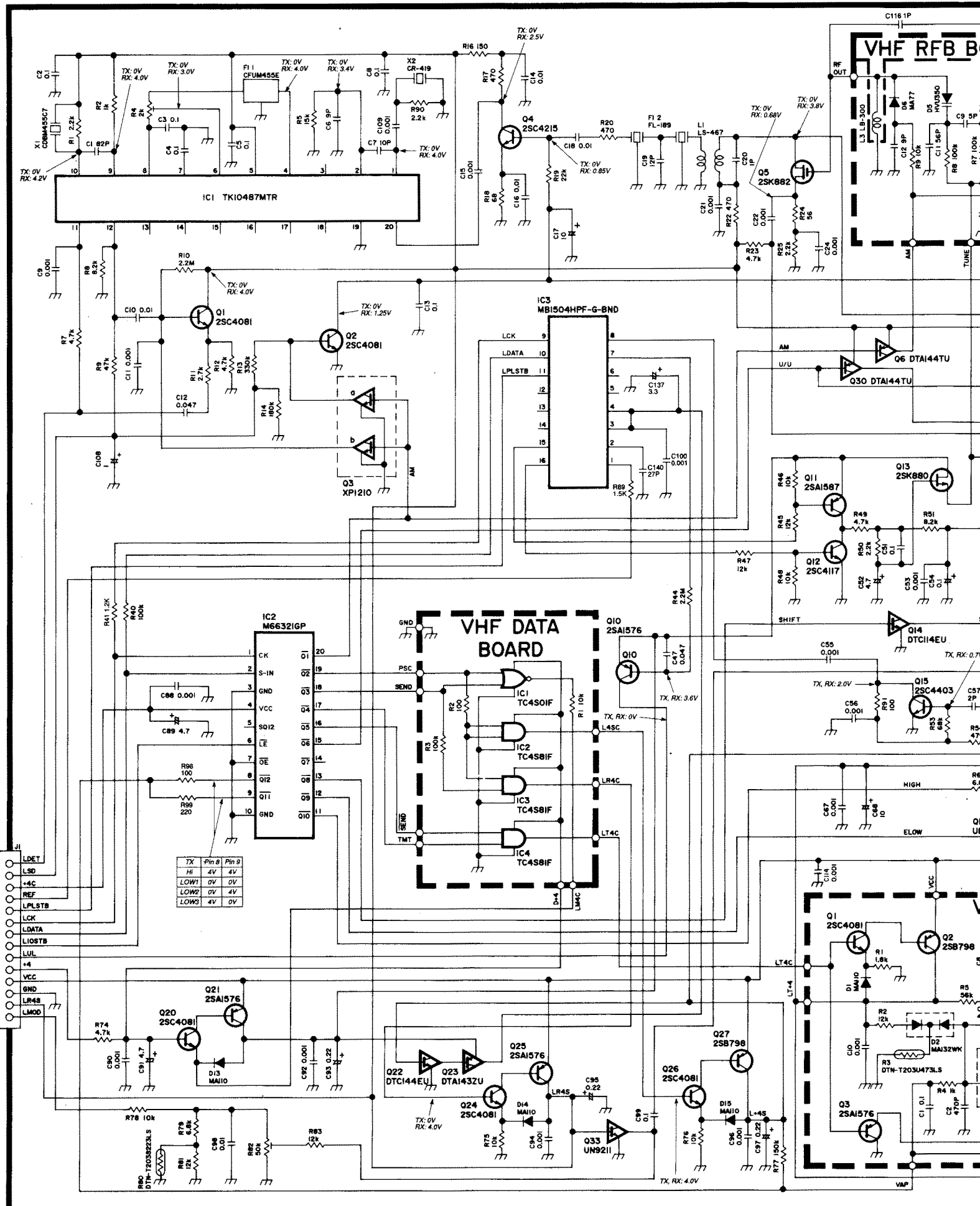




Note: Do not connect to +13.5V



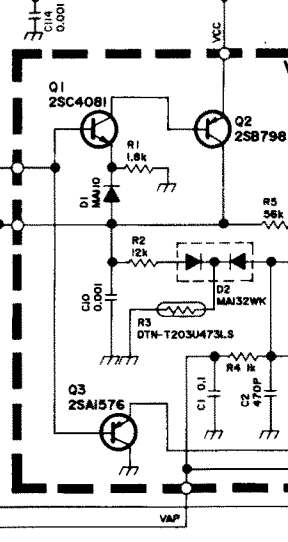
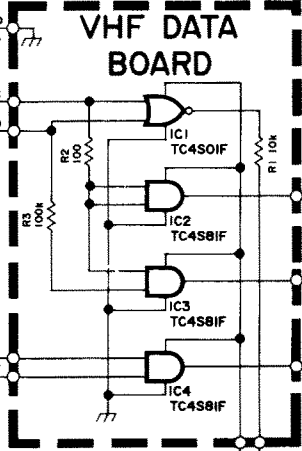
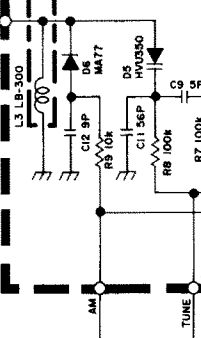
Note: Don't connect the battery between ⊕ and ⊖ terminal.
+13.5V is applied to the HV terminal.



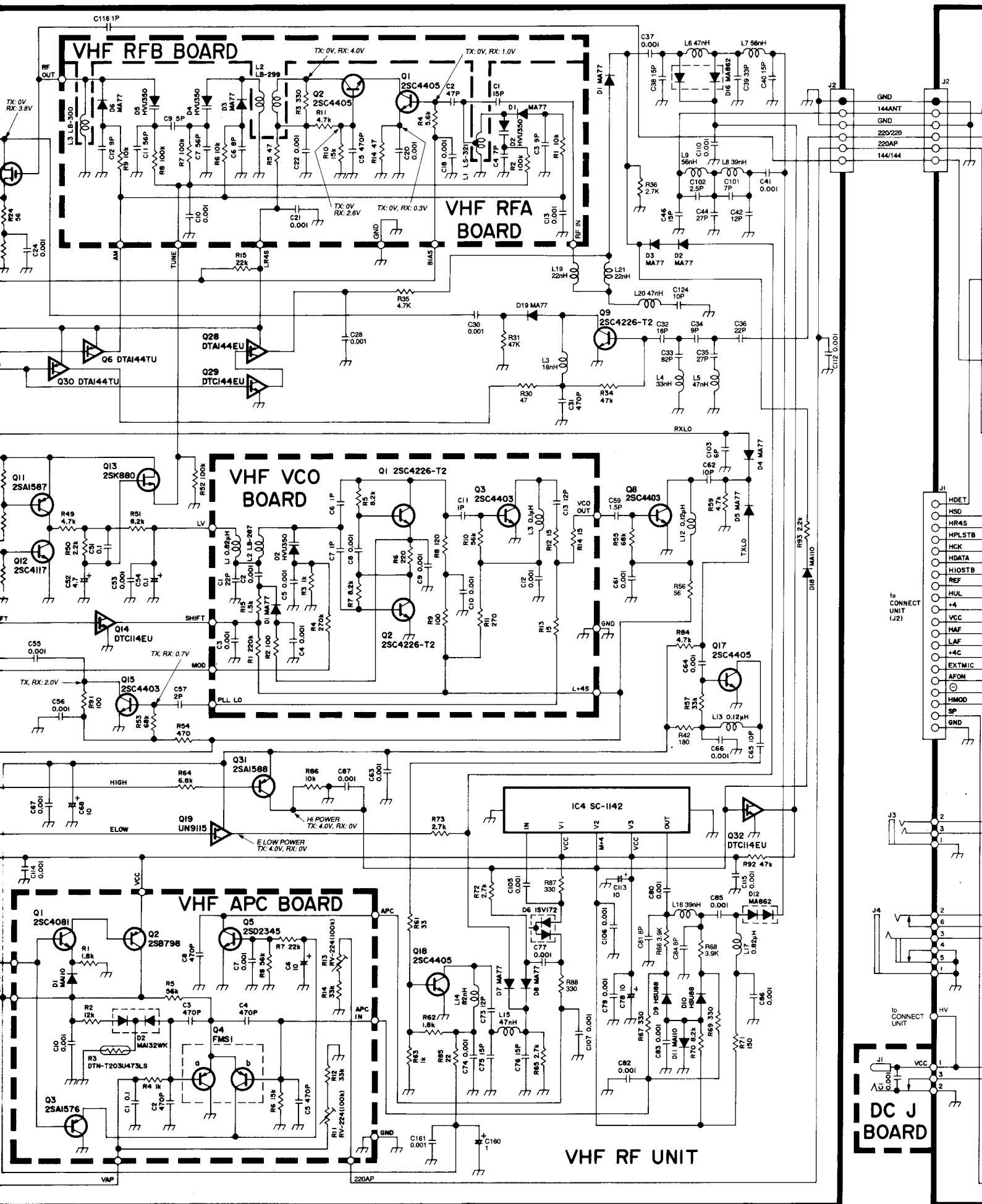
TX	Pin 8	Pin 9
HI	4V	4V
LOW1	0V	0V
LOW2	0V	4V
LOW3	4V	0V

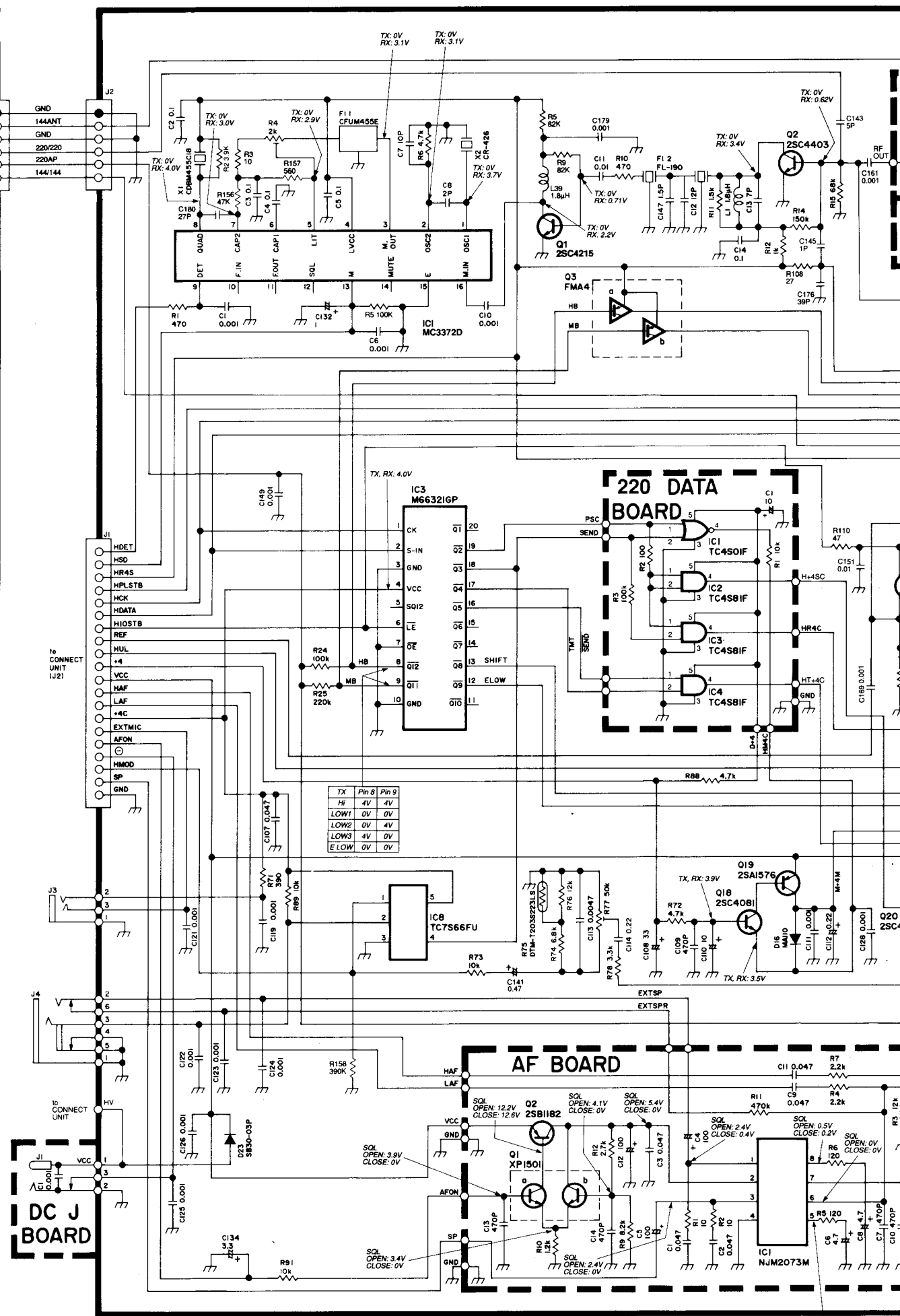
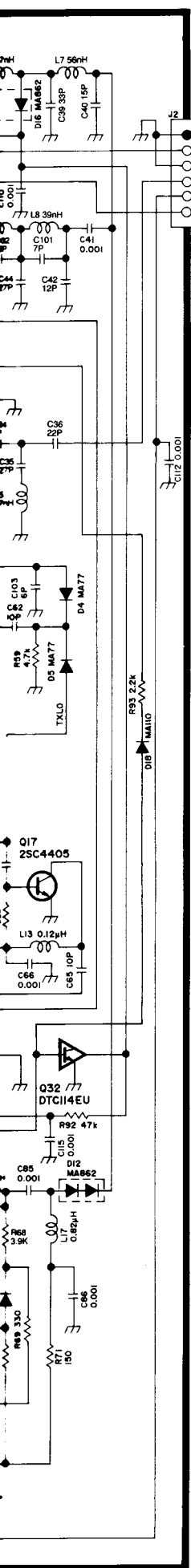
VHF DATA BOARD

VHF RFB



- LDET
- LSD
- +4C
- REF
- LPLSTB
- LCK
- LDATA
- LIQSTB
- LVL
- +4
- VCC
- GND
- LR4S
- LMOD





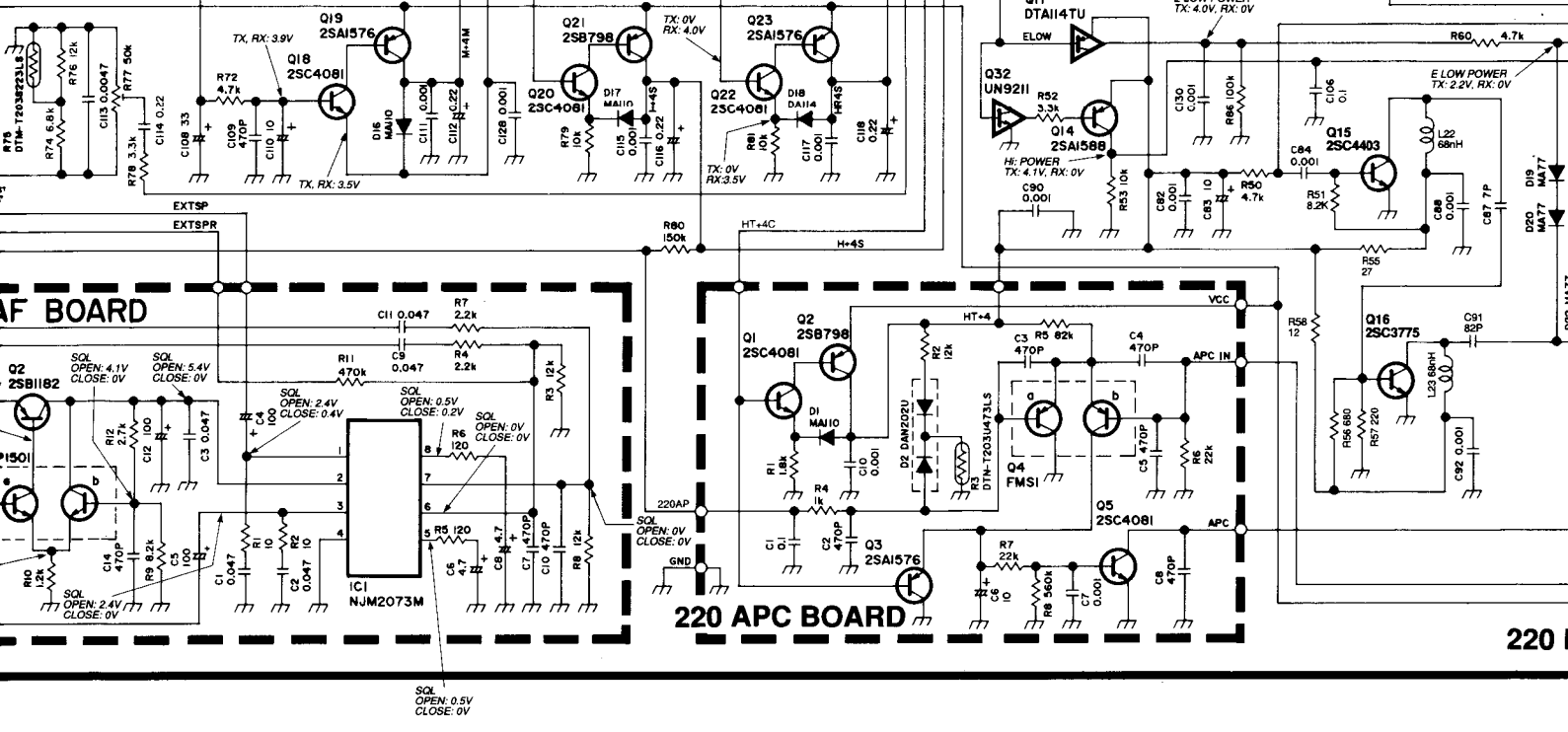
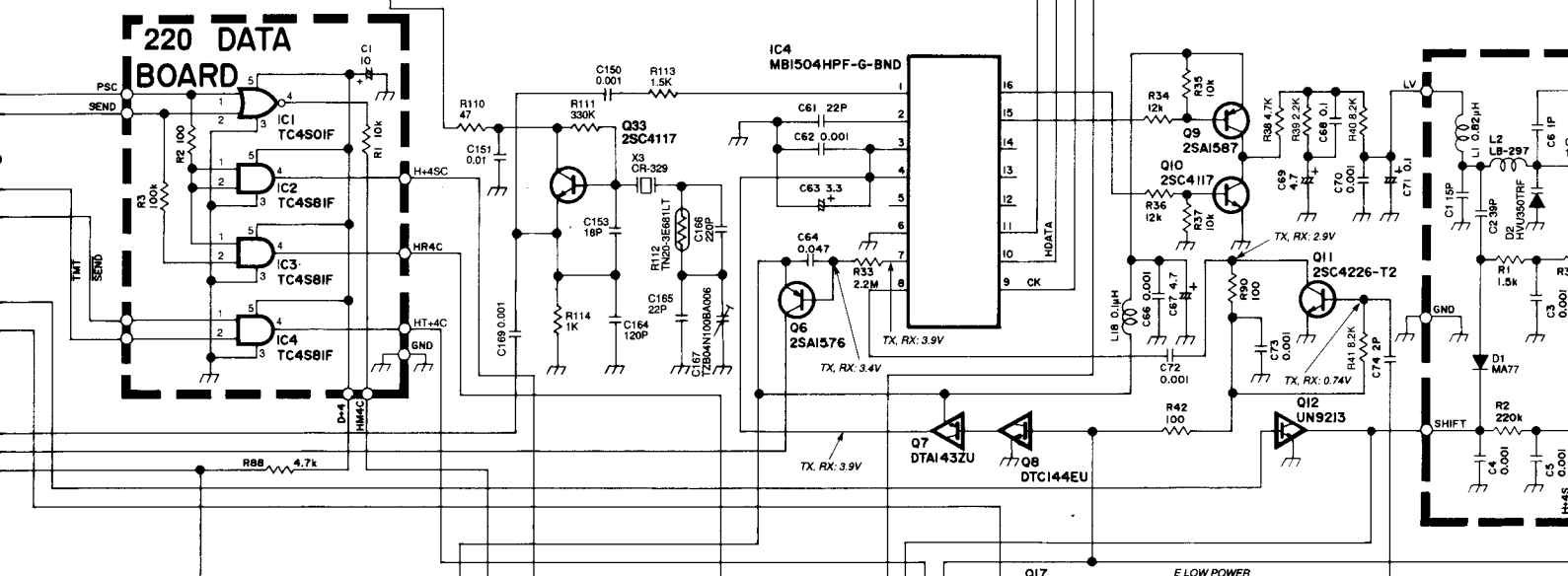
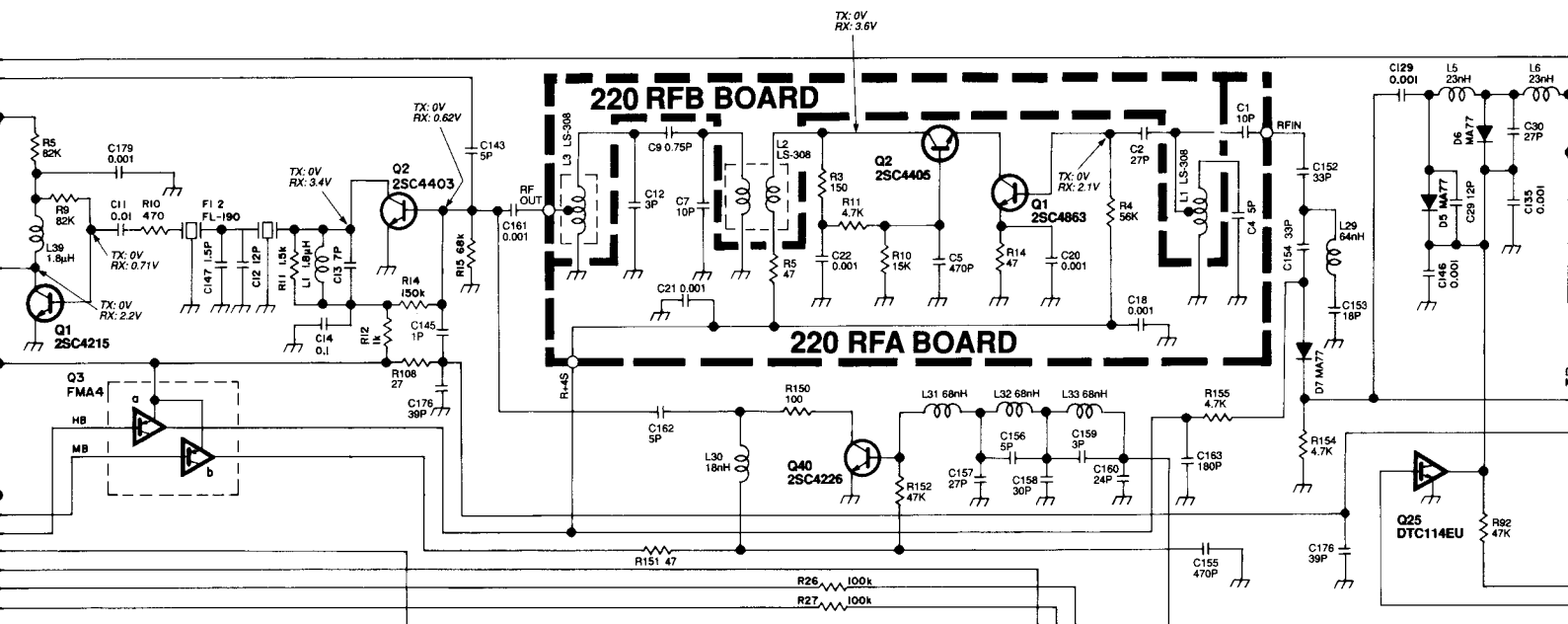
TX	Prn 8	Prn 9
HI	4V	4V
LOW1	0V	0V
LOW2	0V	4V
LOW3	4V	0V
ELOW	0V	0V

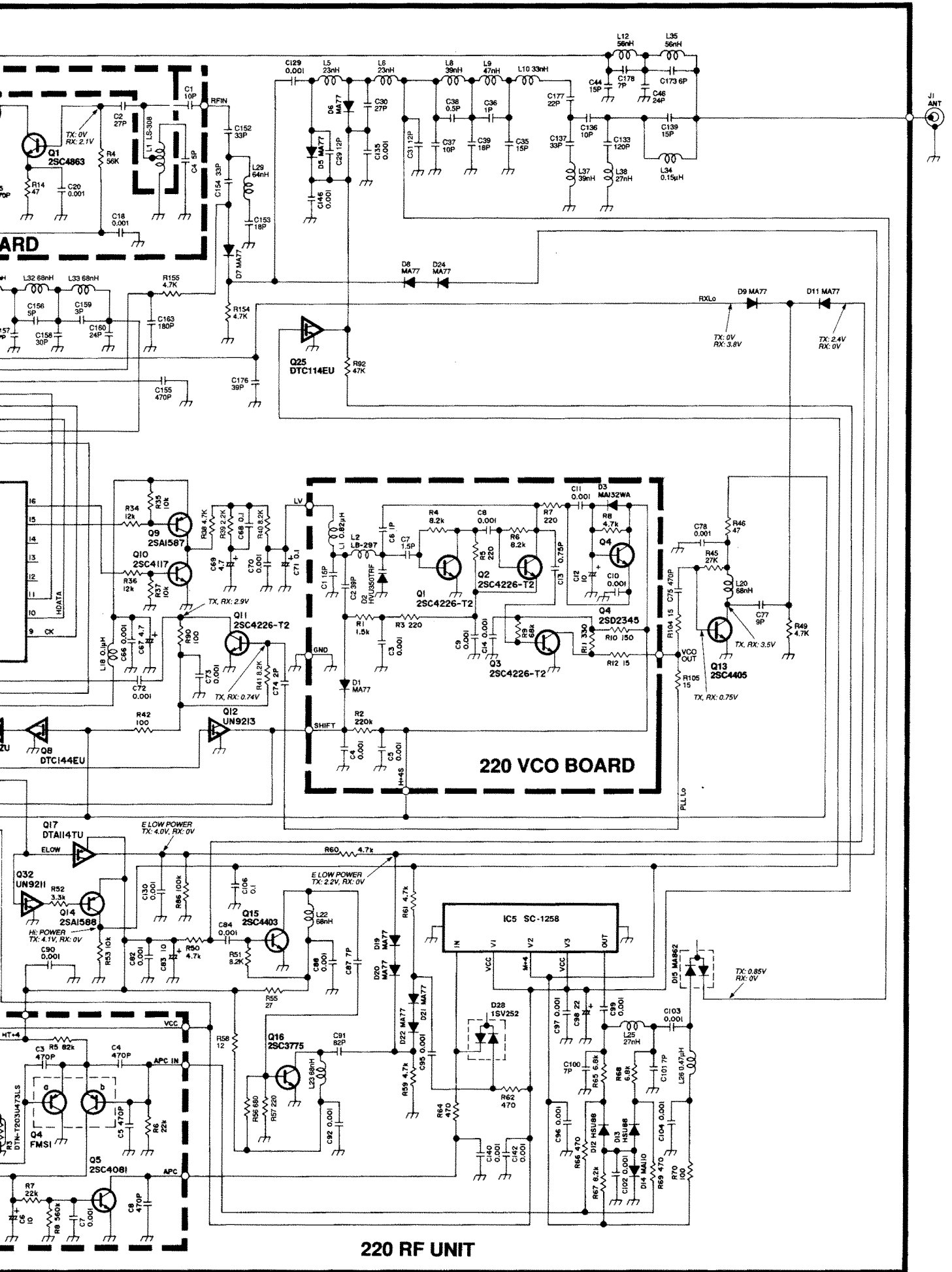
220 DATA BOARD

AF BOARD

DC J BOARD

SOL OPEN: 0.5V
CLOSE: 0V





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